



Graceland Park O'Donnell Heights and Holabird Elementary/Middle Schools

UDARP PRESENTATION 1 – MARCH 24TH





Holabird Academy



Graceland Park
O'Donnell Heights
Elementary Middle School



195

Introduction

21st Century School Buildings Program

The Baltimore City Public School System (City Schools) Construction and Revitalization Act of 2013 resulted in a partnership between:

- The State of Maryland
- Baltimore City
- City Schools

Approximate \$977 million will modernize between 23 and 28 school buildings.

Capital Improvement Program (CIP)

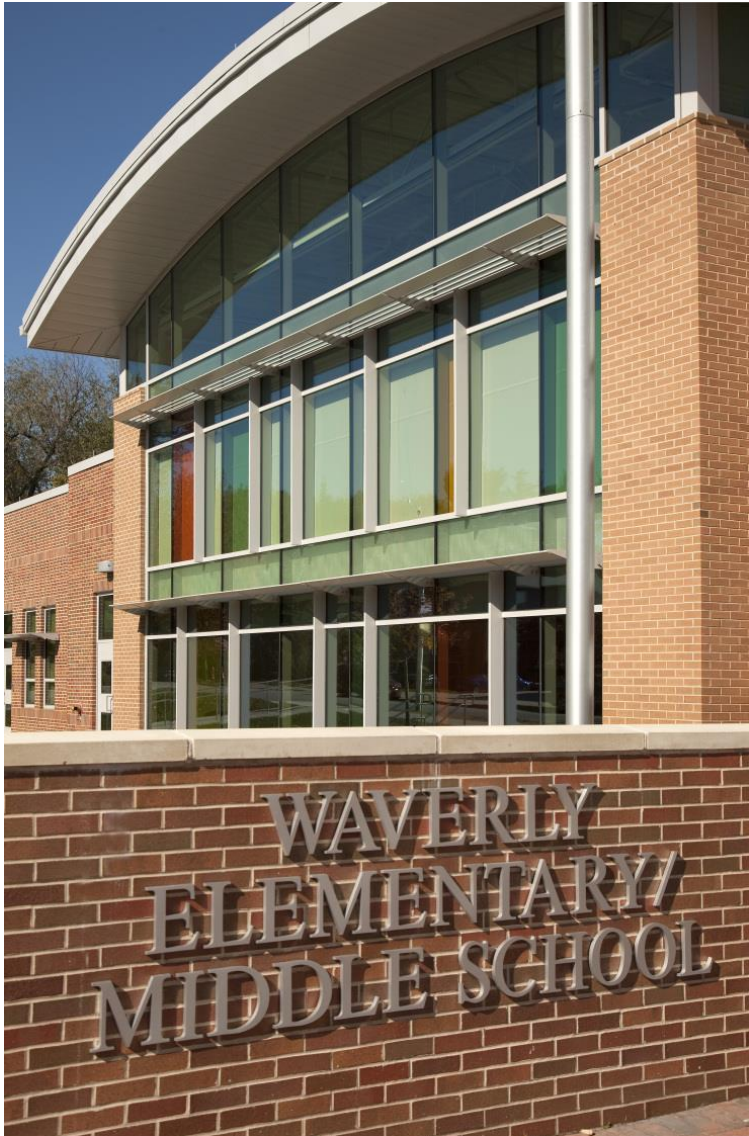
Traditional way to fund school construction and renovation.

Funding comes from the State of Maryland Interagency Committee on School Construction (IAC).

Schools to be modernized include:

- Holabird Elementary/Middle
- Graceland Park/O'Donnell Heights Elementary/Middle

Introduction - Board of School Commissioners Priorities



...to give students the building they deserve – now

- Invest to support academic success for all students
- Engage school communities to inform the creation of excellent school buildings
- Align school building with demographic and enrollment trends, parent and student choice
- Invest to have maximum impact on community stability, growth and development
- Create school buildings on the cutting edge of technology and environmental sustainability

Introduction - School Vision and Mission



- To nurture, engage, and empower the whole child for life-long excellence.
- To empower the whole child through rigorous and effective instructional practices, student engagement, and on-going school-wide collaboration that is student centered and goal oriented.

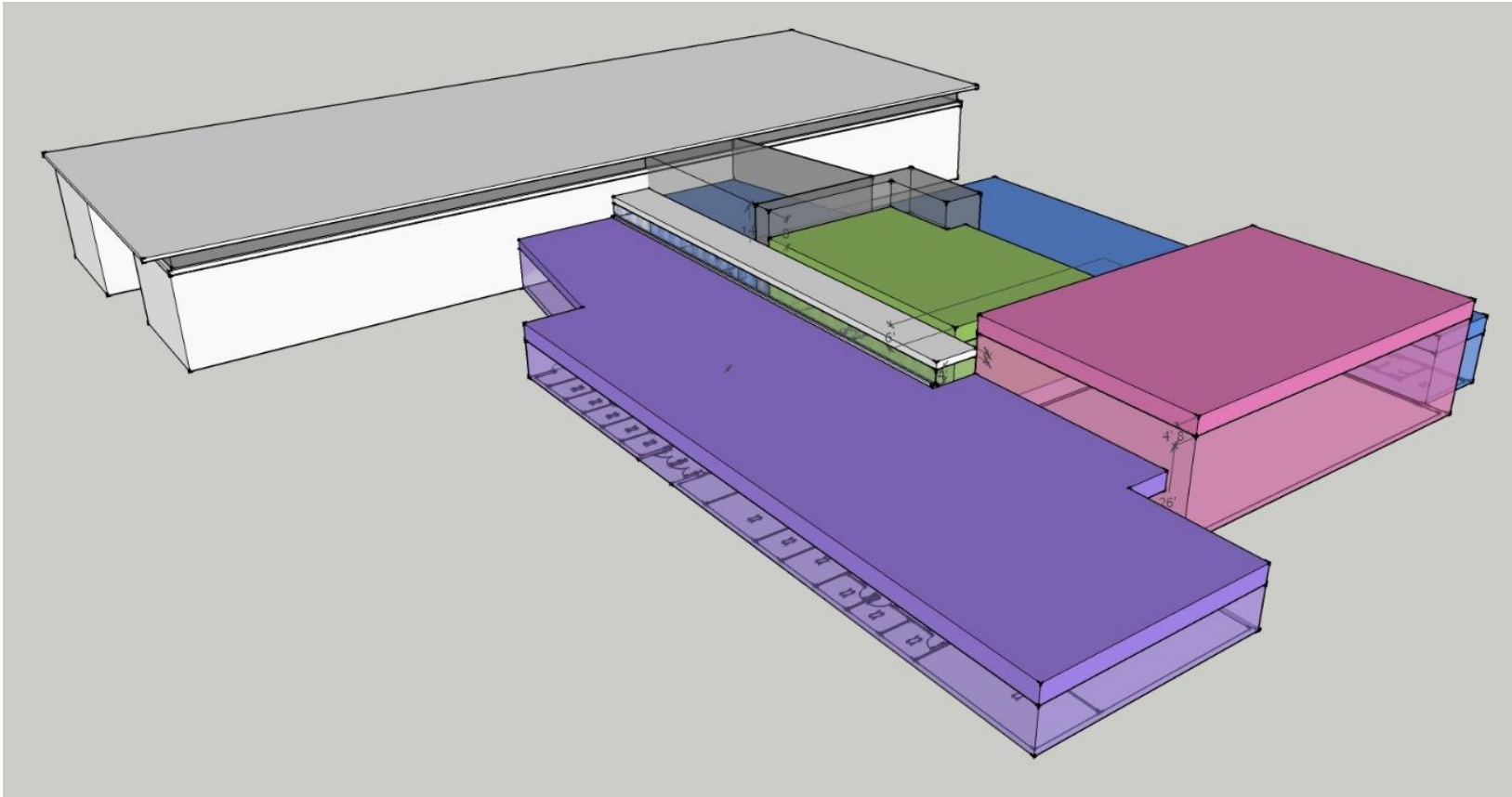
Introduction - Family and Community Guiding Principles



- Family and community engagement is essential to student success. One key role the district sees for 21st-century schools buildings is as hubs of the communities they serve.
- As a hub of the community, spaces in schools will be designed to support parent and community partnering.
- The educational specifications for the schools ensure that they meet the specific needs of their communities.

Introduction - Prototype Schools

HOLABIRD /GRACELAND PROTOTYPE SCHOOL



Student Capacity: 604 students
Pre K-Grade 8

89,155 SQ FT

Program Net: 62,325 SF

Program Gross: 87,255 SF

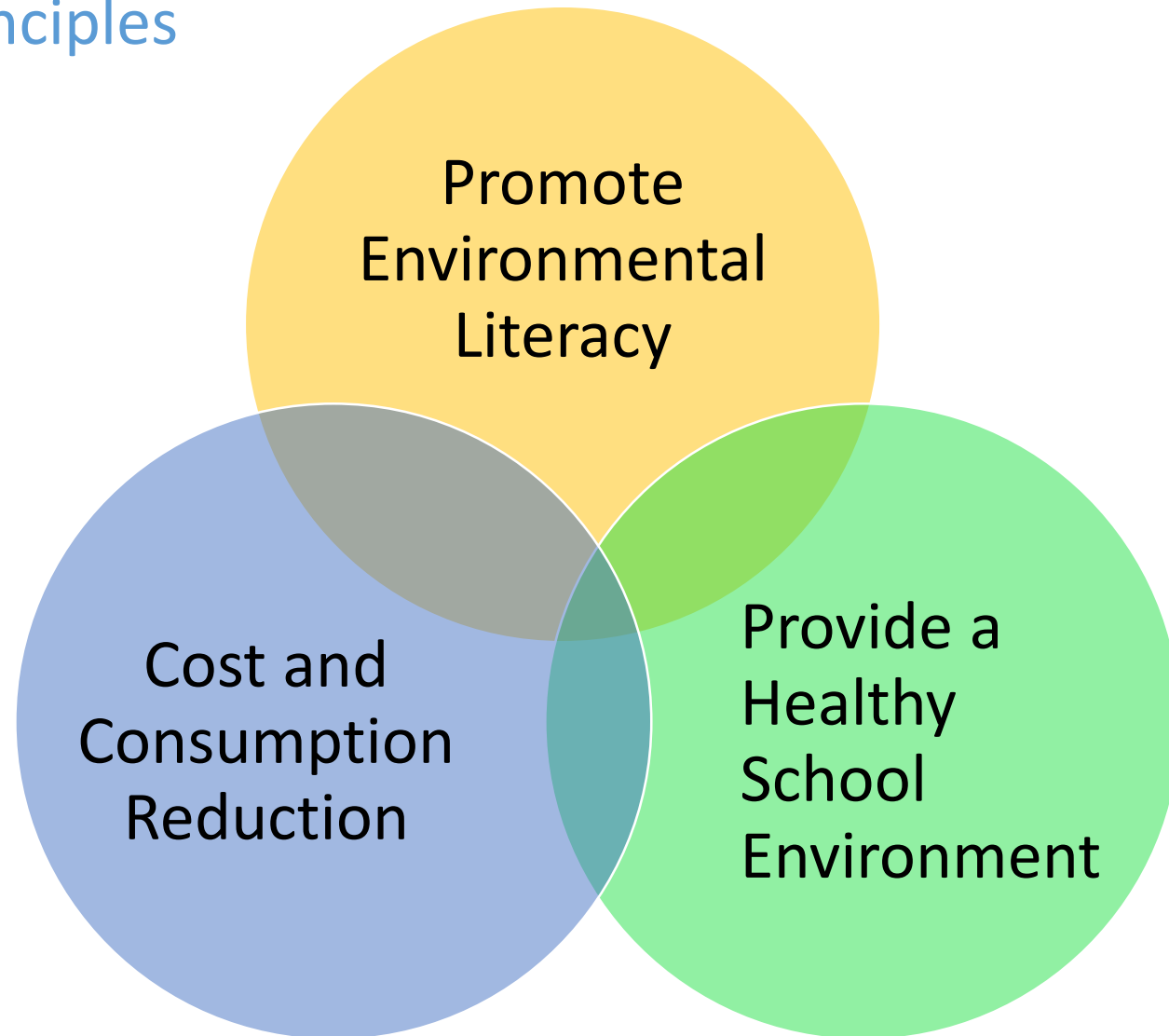
Actual Gross: 89,155 SF

Design Efficiency: 70 %

Compact Building Footprint
Rotate 180 degrees

Introduction - City Schools Approach to Sustainability

- Three Core Principles



Project Overview - Enrollment

GRACELAND PARK CURRENT

Current grades	Pre K- 8
Current capacity	315
Current enrollment	456
Current utilization	144%

HOLABIRD CURRENT

Current grades	Pre K- 8
Current capacity	363
Current enrollment	454
Current utilization	125%

PROJECTED ENROLLMENT EACH SCHOOL

Design grades	Pre K- 8
Design capacity	604
Design enrollment	519
Design utilization	86%

Project Overview - Program

(6) Pre K and Kindergarten Classrooms	Technical education space
(4) 1 st and 2 nd grade classrooms	(2) Music classrooms
(6) 3 rd , 4 th and 5 th grade classrooms	Art room
(3) Flex classrooms	Media Center/ Video Studio
(6) 6 th , 7 th , and 8 th grade classrooms	Cafeteria
(4) Collaborative learning areas	Gymnasium
(3) Special Education classroom	Administrative, Health Suites
Middle school science lab	Student Services
	Community Space

Project Overview – Feasibility Review

SCHEME 1G and 1H: RENOVATION PLUS ADDITION

Reuse portions of the existing buildings, maintaining historically significant portions. Provide an addition to bring the building up to program goals.>

SCHEME 2G and 2H: INDIVIDUAL REPLACEMENT

Complete replacement on site of a new state of the art PK to 8 school to meet the established program goals while the existing school remains operational on site. ----->

SCHEME 3: NEW COMBINED BUILDING

Replace both schools in a combined building on a new site as part of the neighborhood development plan. The schools would maintain their individuality but share many of the core programs

SCHEME 4: NEW SCHOOL

Merge both schools into one larger school and replace on a new site as part of the neighborhood development plan.>

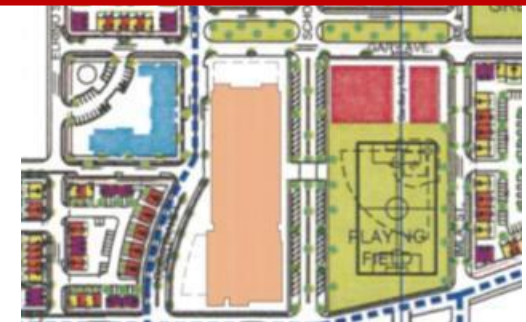
SCHEME 5G and 5H: RENOVATION

Both schools are renovated at their current size to provide state of the art teaching spaces.

A Graceland
O'Donnell



B Holabird



Project Overview – LEED Silver Certification



Five LEED Categories:

- ✓ Sustainable Sites (SS)
- ✓ Water Efficiency (WE)
- ✓ Energy & Atmosphere (EA)
- ✓ Materials & Resources (MR)
- ✓ Indoor Environmental Quality (IEQ)

Two Optional LEED strategies:

- ✓ Innovation in Design (ID)
- ✓ Regional Priority (RP)

Project Overview – Beyond LEED Silver Certification

More than just LEED Silver Certified

A Focus on Net Zero Energy
Design

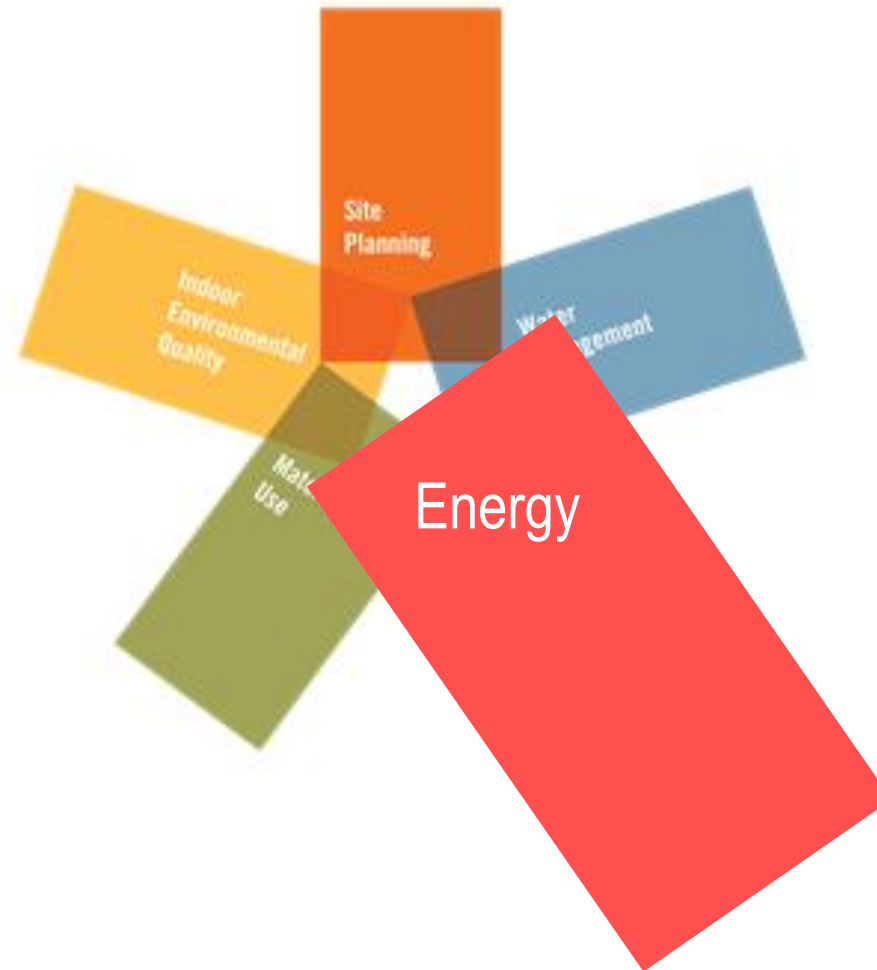
Optimizing Passive Design

+

Optimizing Active Systems

+

Offsetting with On-Site
Renewable Energy



Project Overview – Beyond LEED Silver Certification

Maryland Net Zero Energy Schools Program

Goal: Support the development of 3 net zero energy schools within the BGE service area. A NZE school produces as much energy as it uses over a given year.

How do we get there? The design reduces energy use through energy efficiency measures and uses renewable energy to generate the rest.

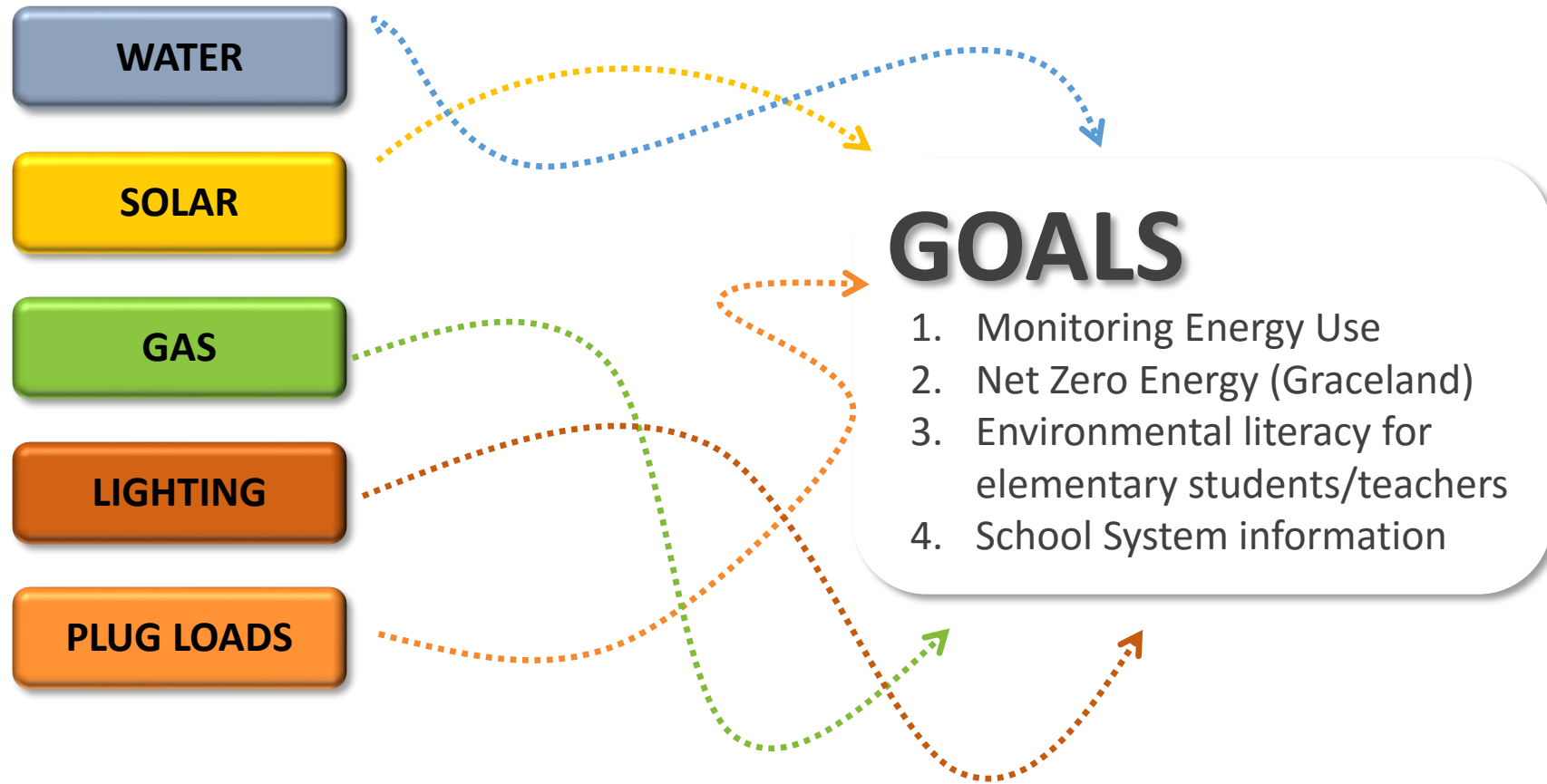
MEA has set a design goal of <25 kBTU/ sq.ft. for a NZE school.

Must consider ALL school uses, not just daytime education.



Project Overview

METERING → MEASUREMENT → IMPROVEMENT



Project Schedule

Modified Schematic Design: January 2016

Design Development: February 2016 – August 2016

Construction Documents: August 2016 – February 2017

Building Permit: January 2017

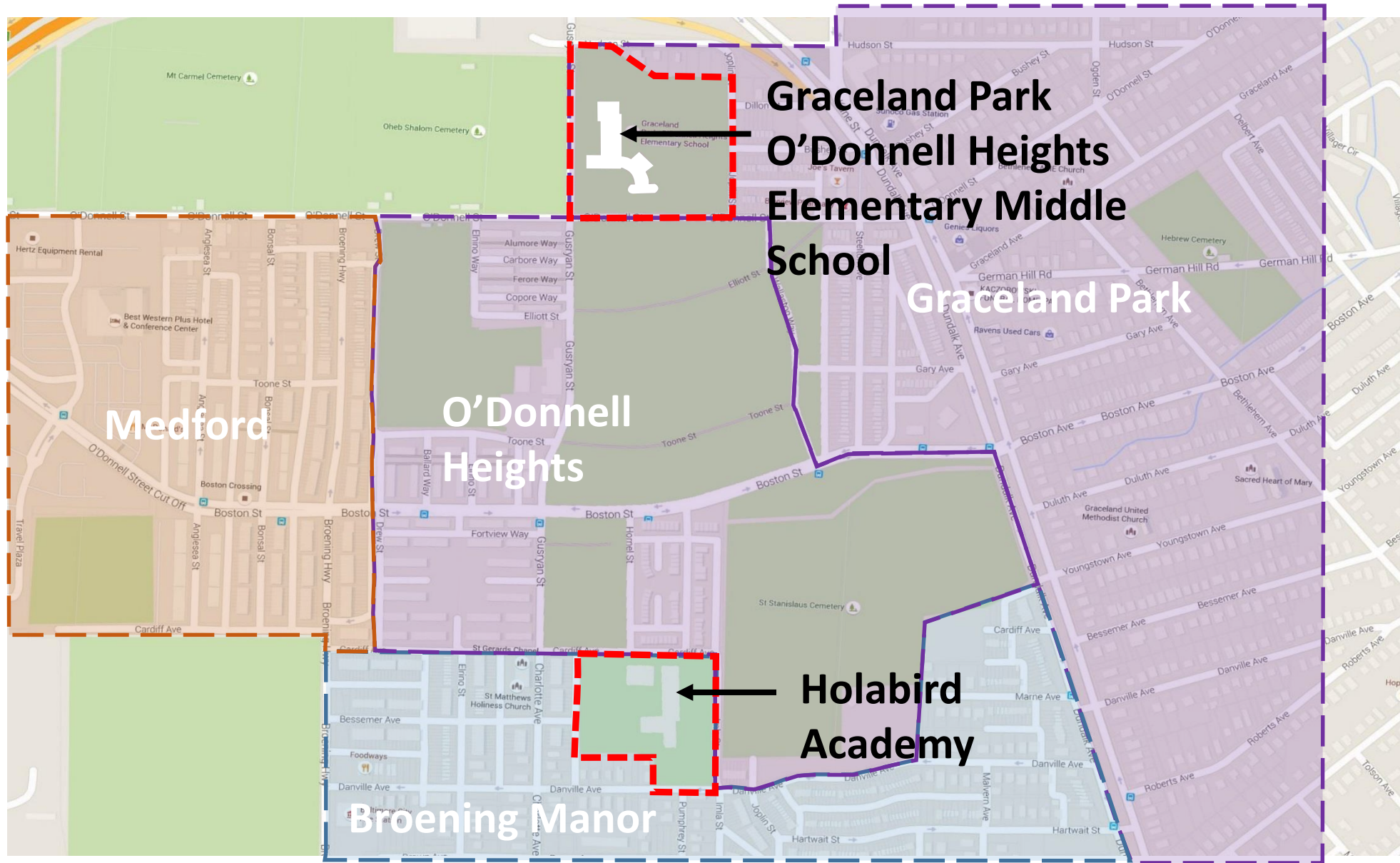
Bidding and Negotiation – February – June 2017

Construction:

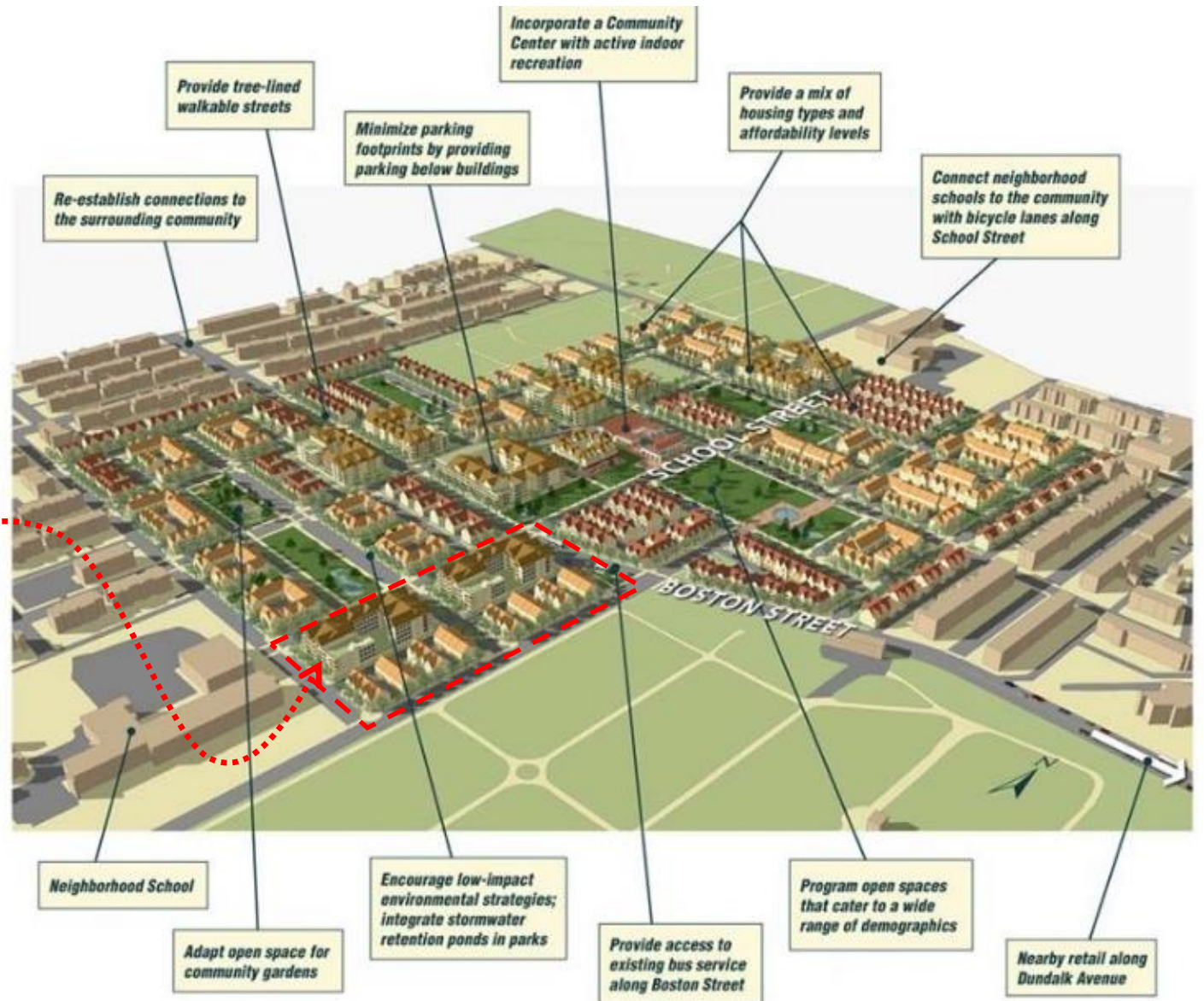
- Phase 1 (New Building/Site Work): June 2017 – Late 2018

- Phase 2 (Building Demolition/Site Work): January 2019 – August 2019

Community Connections



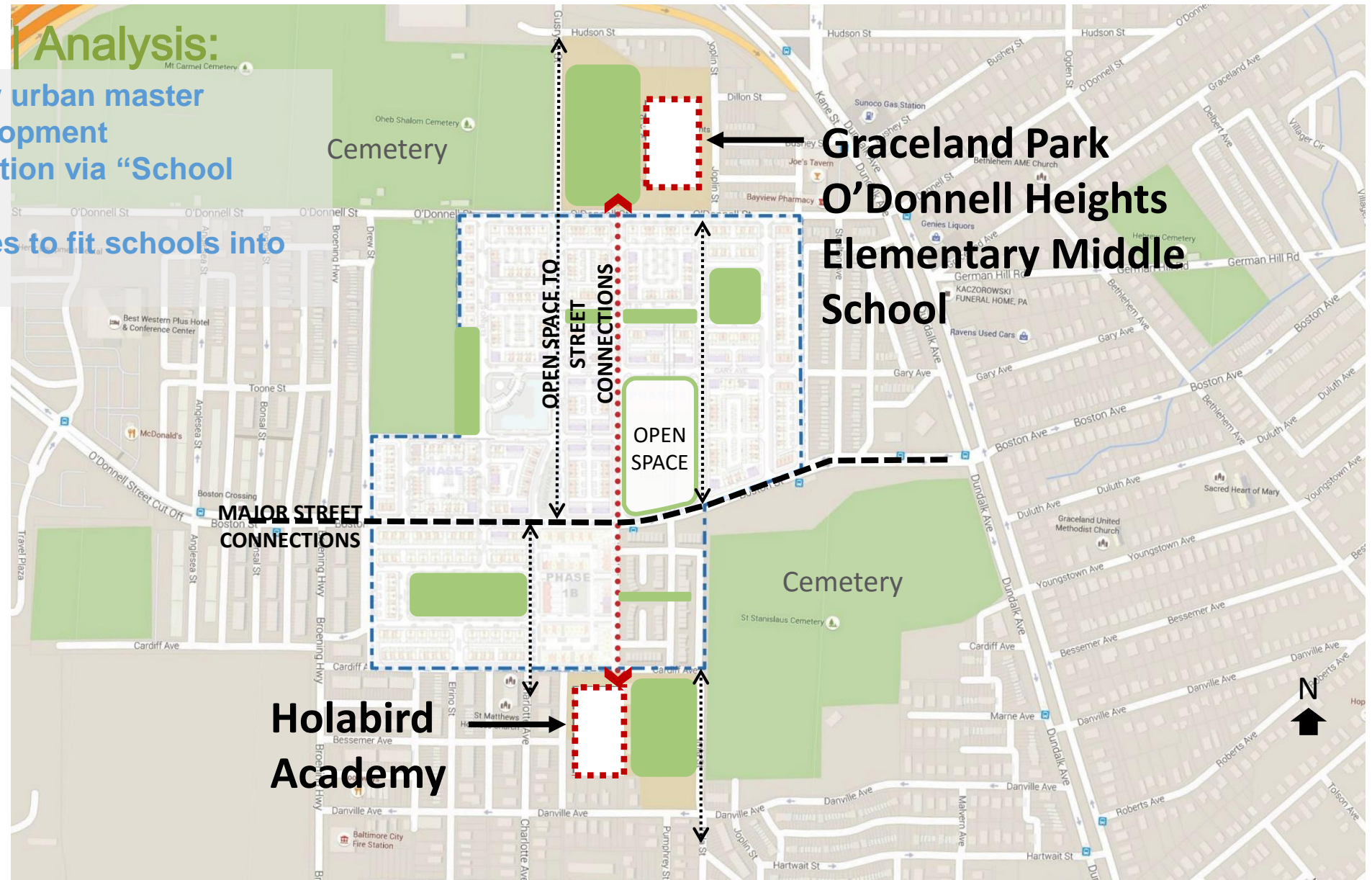
Community – Master Plan



Community Connections

Site Context | Analysis:

- Context – new urban master planned development
- Loose connection via “School Street”
- Designing sites to fit schools into urban grid





Graceland Existing Site – View @ corner of Gusryan and O'Donnell Sts.



Graceland Existing Site – Views along Gusryan Street



Graceland Existing Site – Views along O'Donnell Street



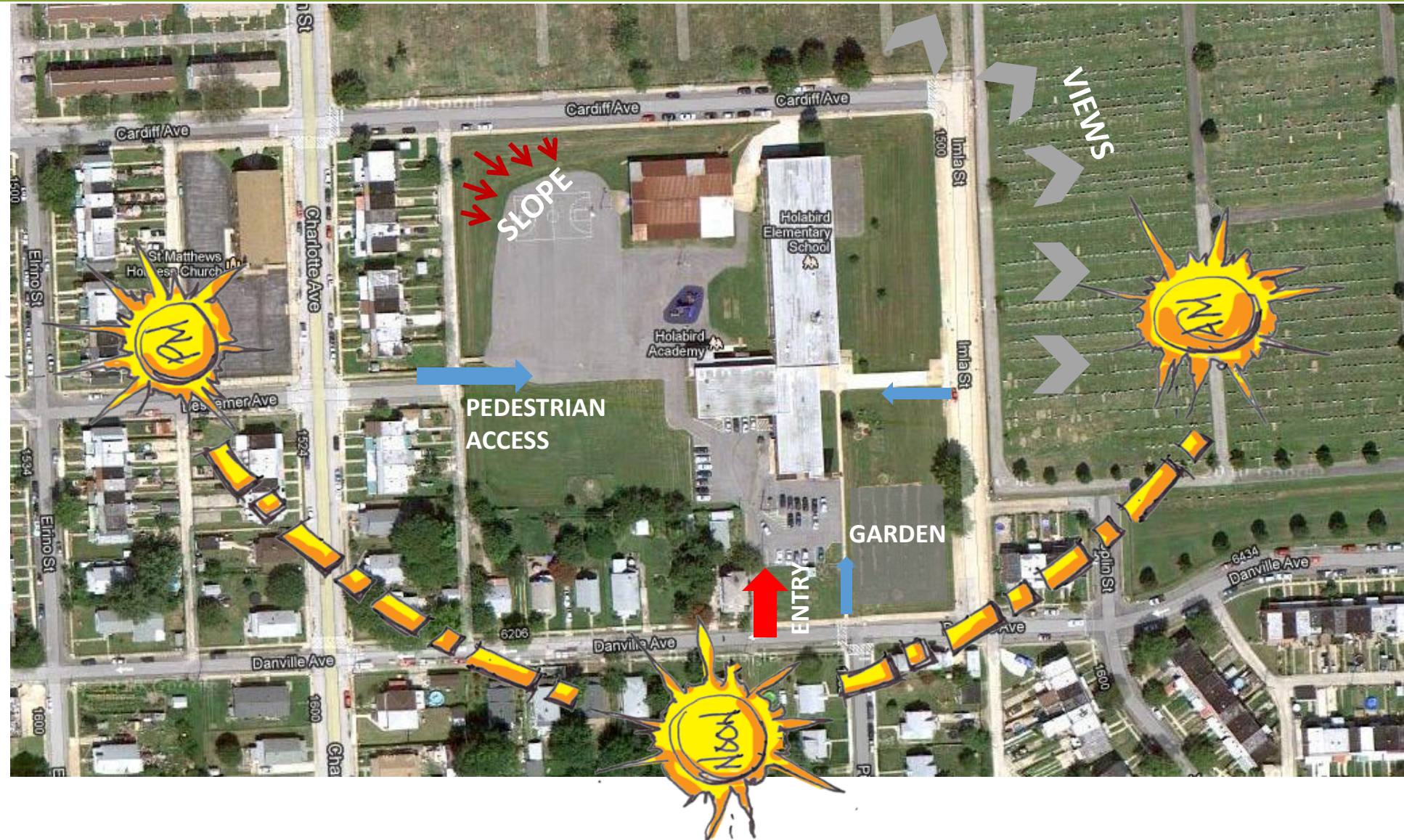
Graceland Existing Site - View from SW corner



Graceland Existing Site – View from NW corner



Holabird Existing Site



Holabird Existing Site - View along Imla Street



Holabird Existing Site – Views along Cardiff Avenue



Holabird Existing Site – Views along Cardiff Avenue



Holabird Existing Site – View from SE corner



Holabird Existing Site – Views along alley on west side



Holabird Existing Site – Views to the west inside site



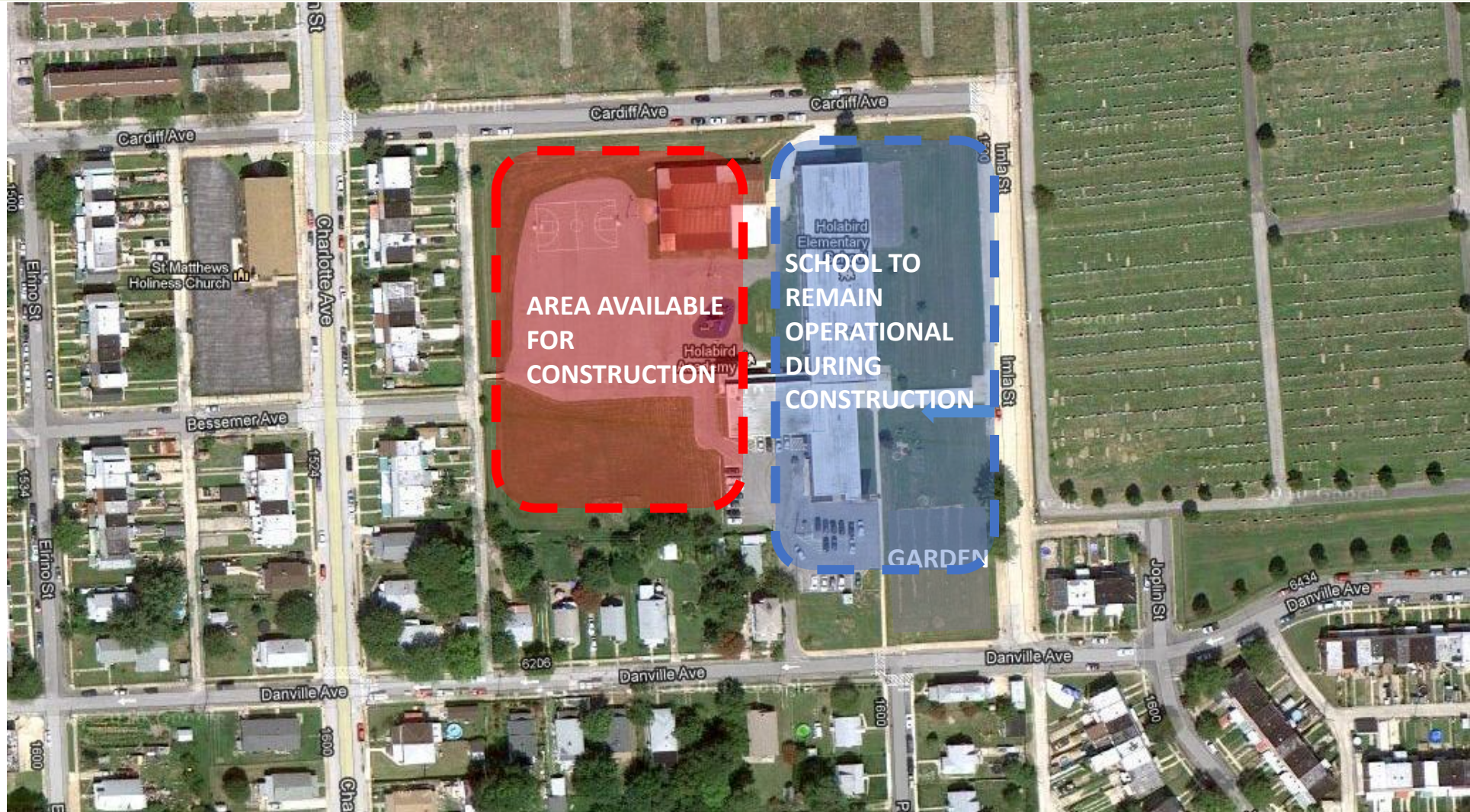
Neighborhood Context – Existing and new Housing



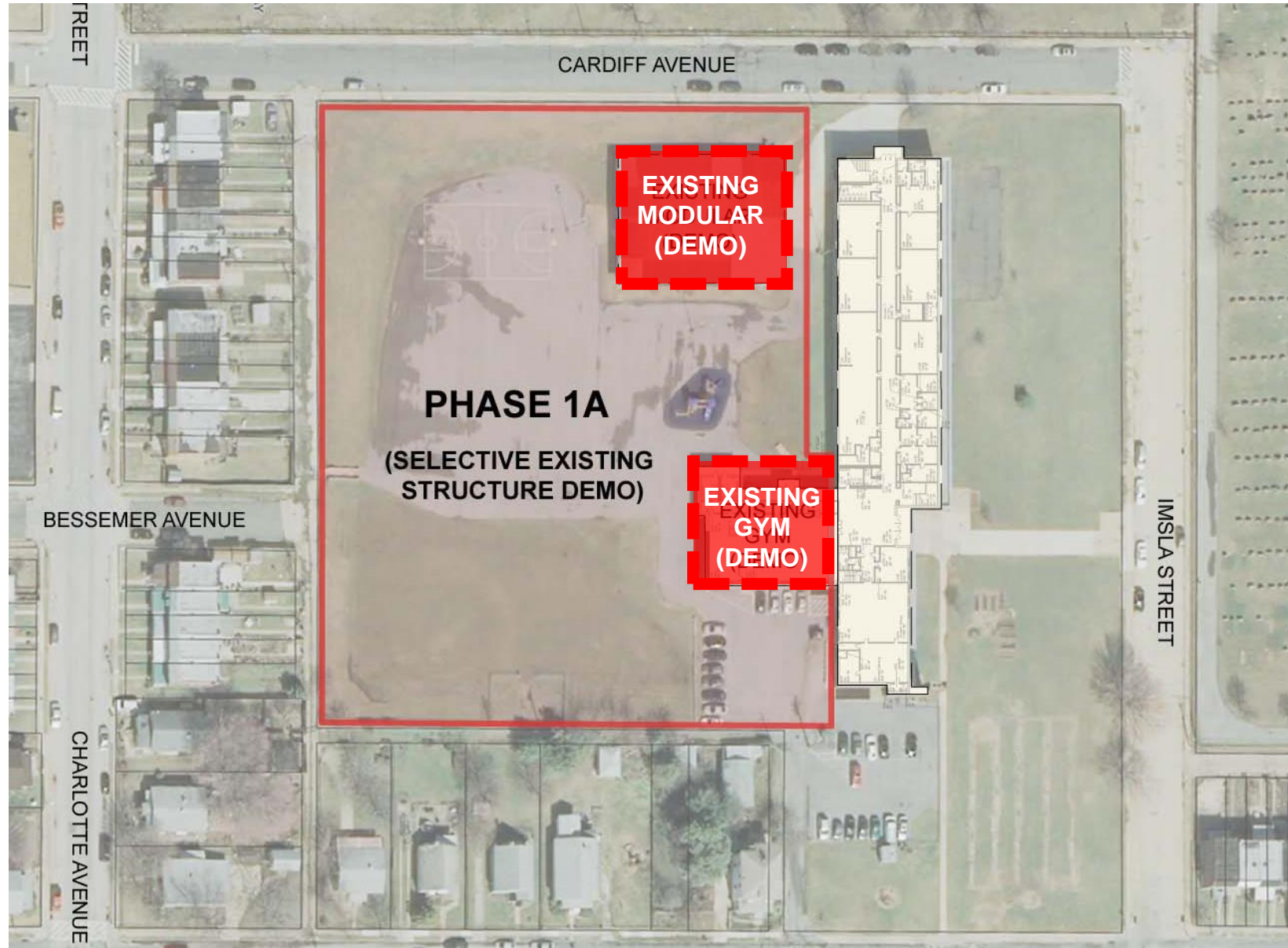
Neighborhood Context – Single family homes



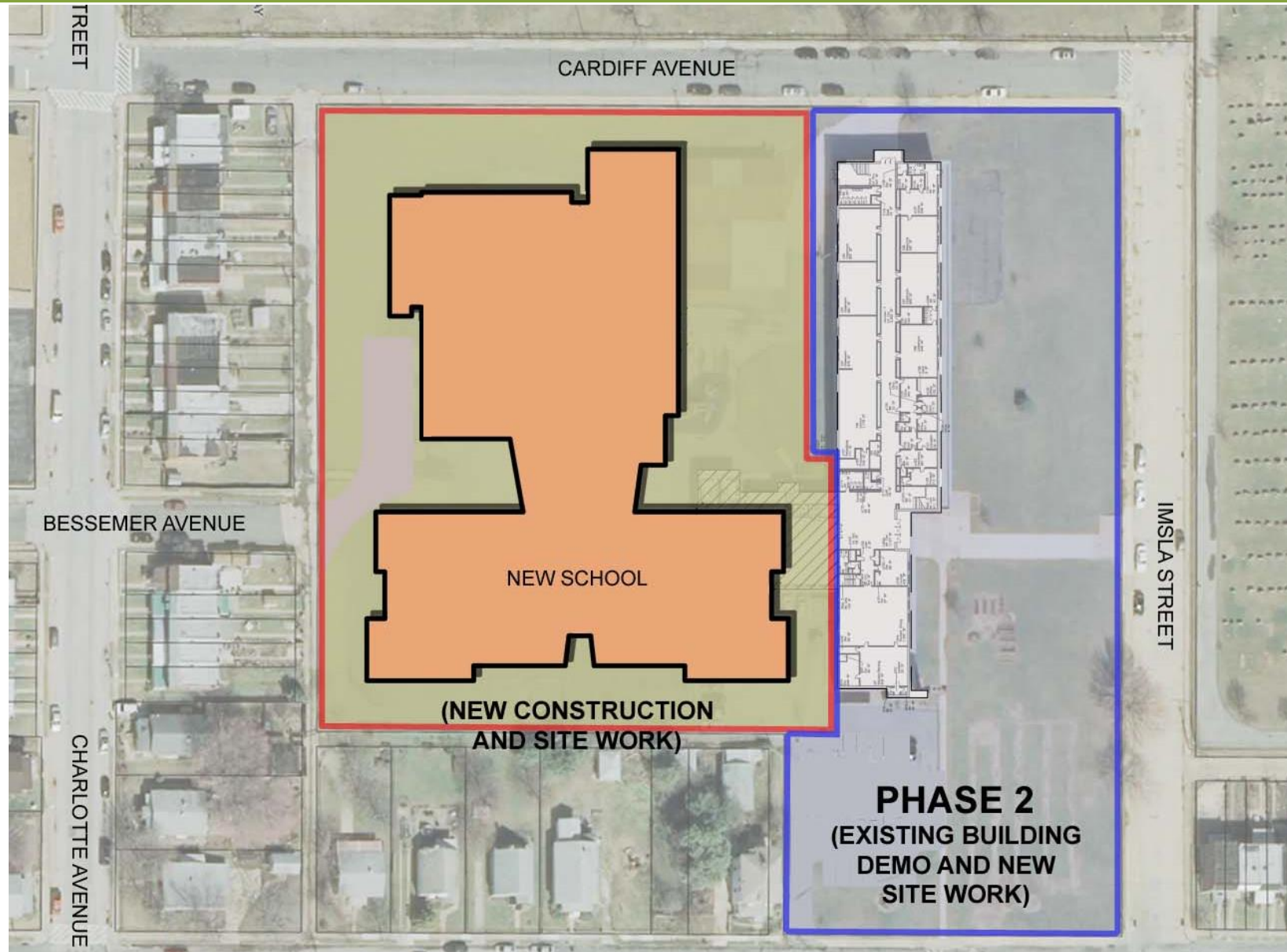
Holabird Available Building Area



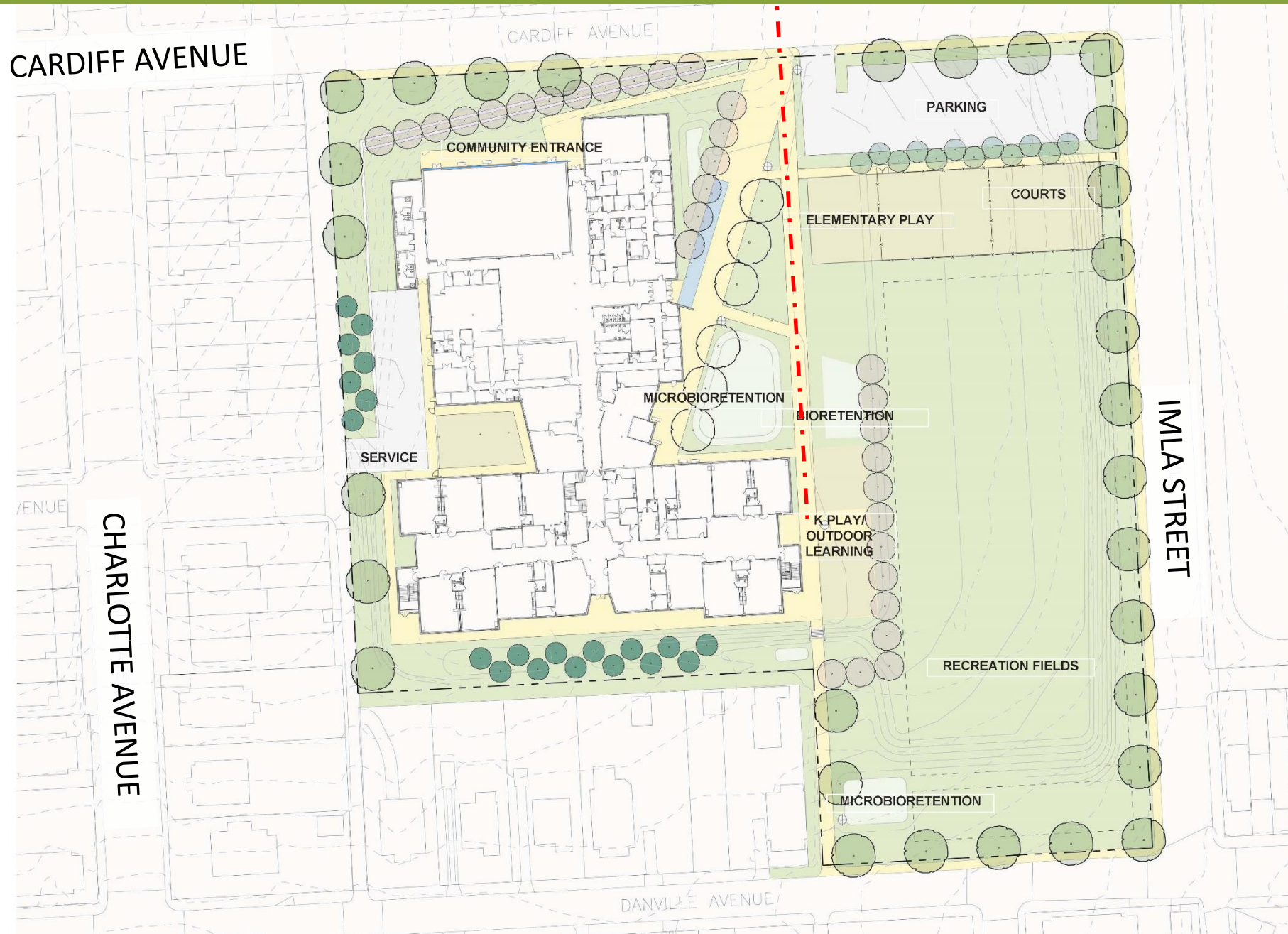
Holabird Phasing



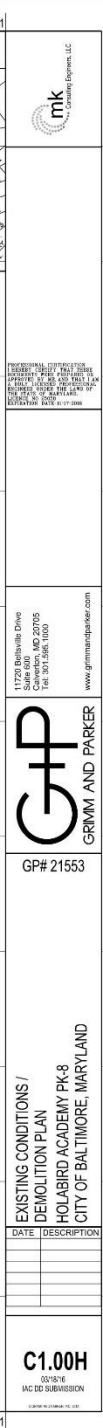
Holabird Phasing



Holabird Site Design – Outdoor Learning Environments



JE



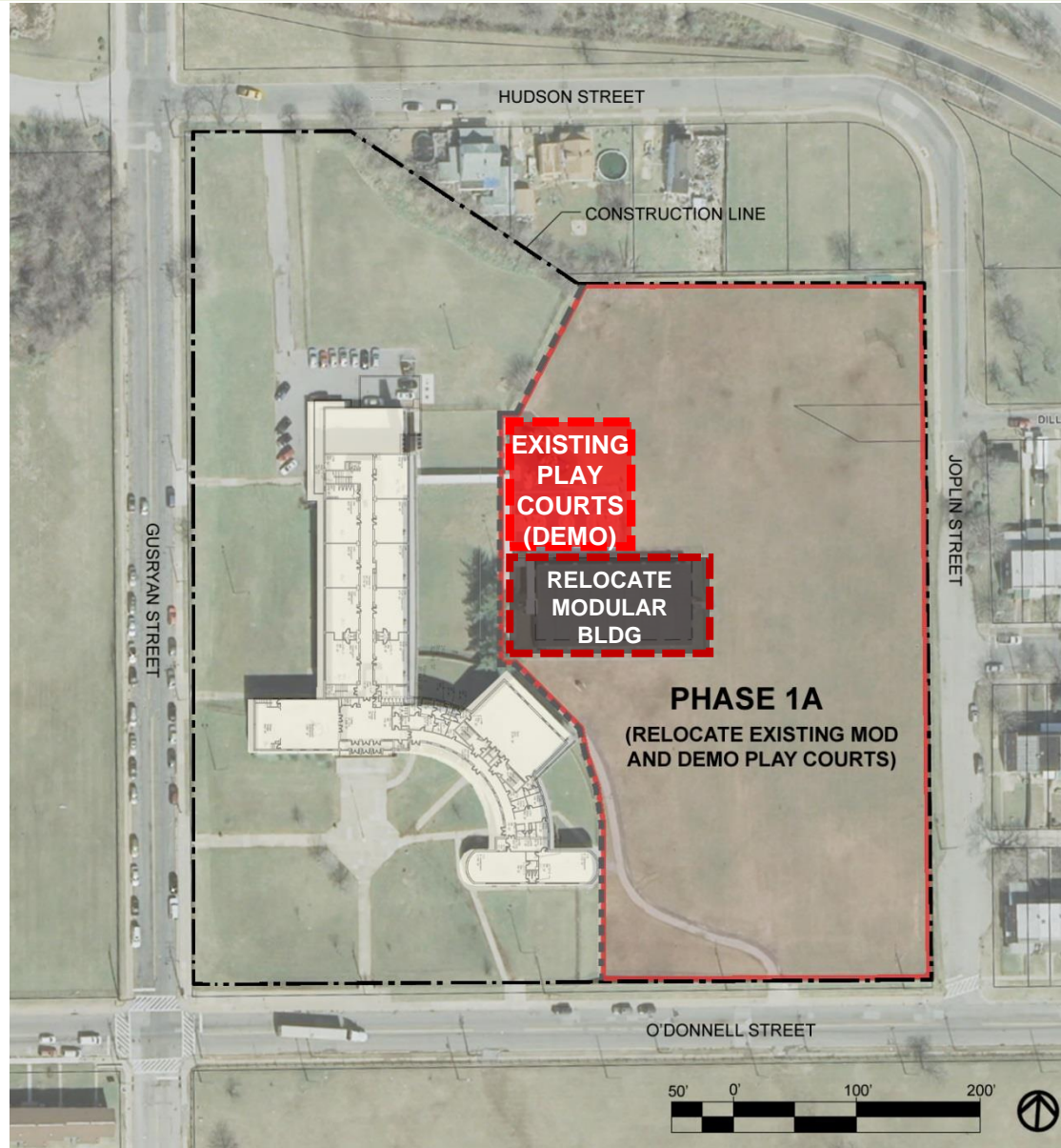
PLOTTED: 3/17/2016
 BY: [illegible]
 FILE: C:\Users\New U



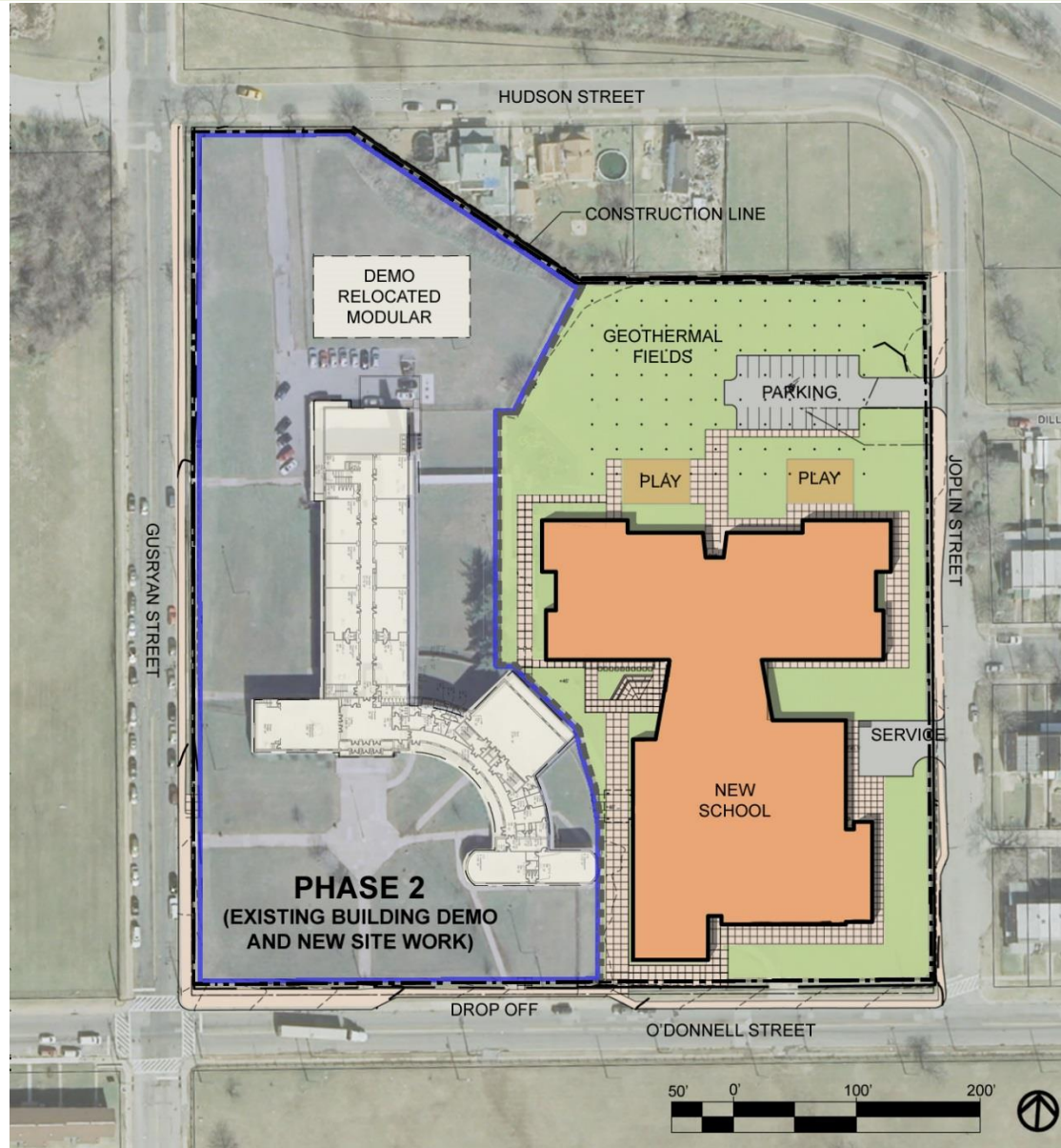
Graceland Available Building Area



Graceland Phasing



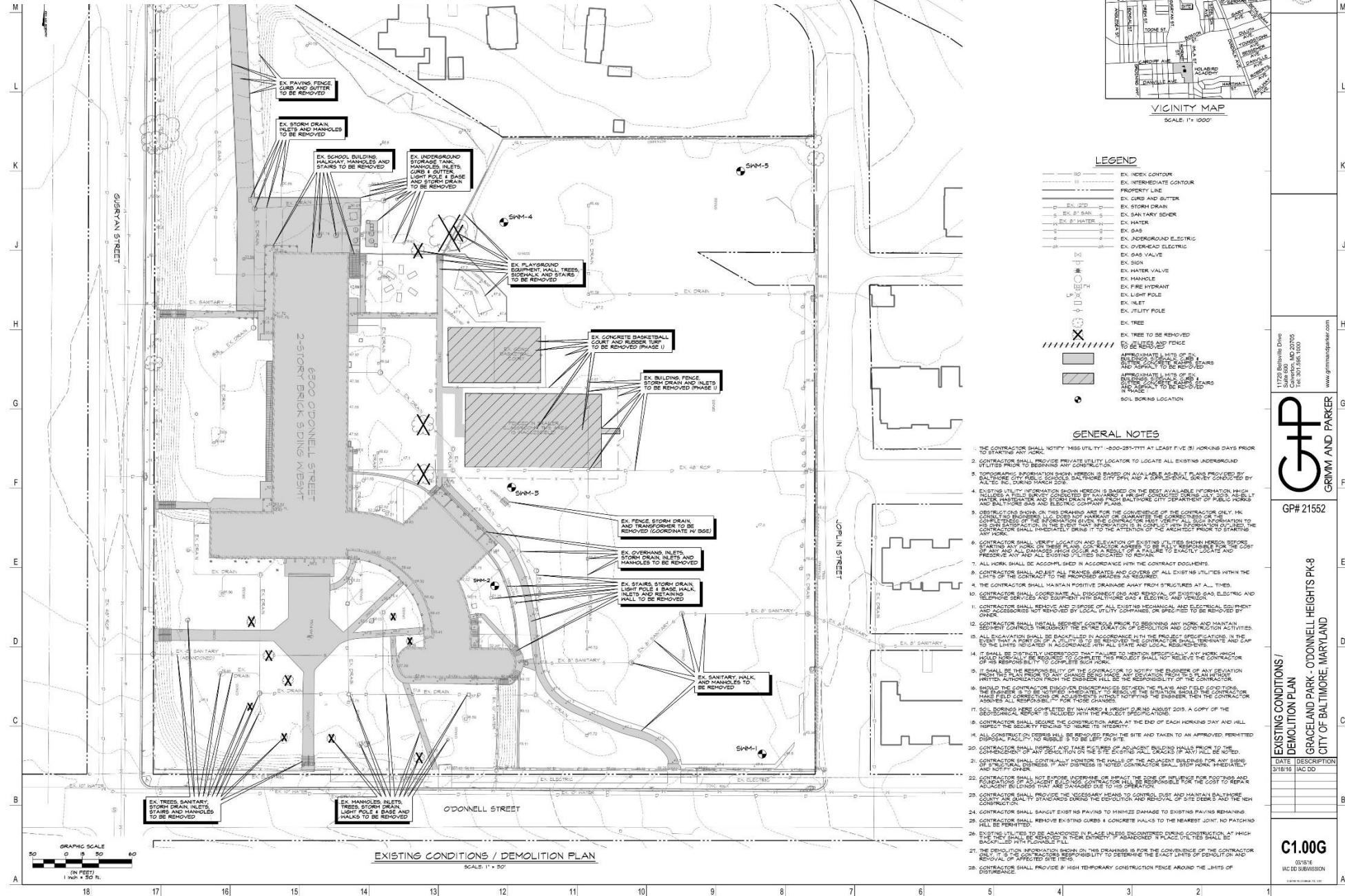
Graceland Phasing



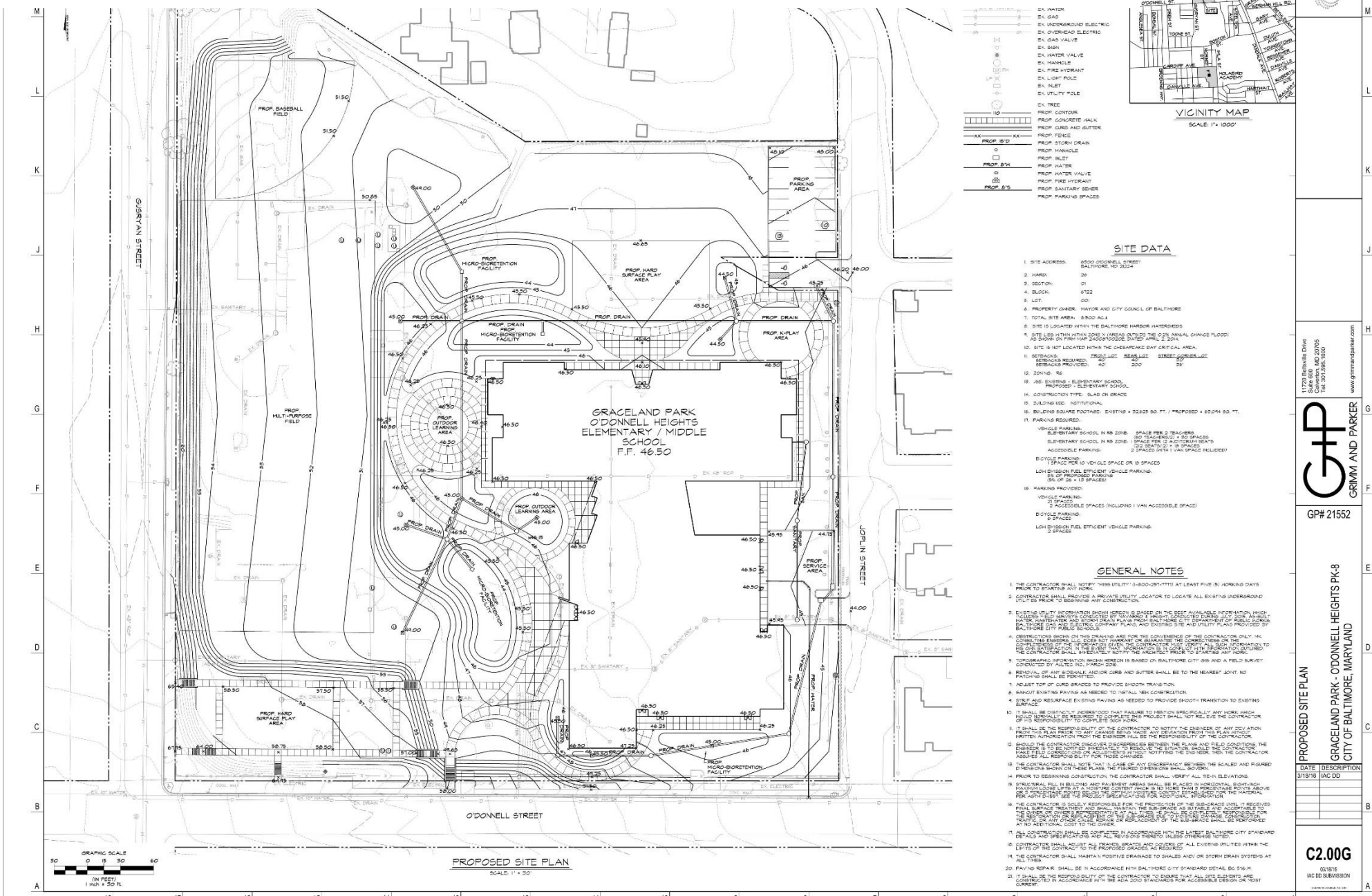
Graceland Site - Learning Environments



Graceland- Civil Existing Site Plan



Graceland - Civil proposed Site Grading Plan



Outdoor Environmental Learning Opportunities

- Creating “NO-MOW” areas and signage
- Biofilters and Raingardens
- Rain barrels at Edible Garden Areas
- Storm drain stenciling
- Informational signage at fixtures



Outdoor Environmental Learning Opportunities

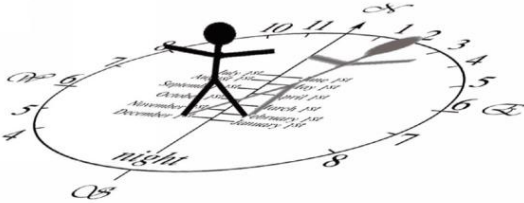
- Energy use monitoring
- Wind energy teaching station
- Solar energy teaching station
“Solar Lab/Deck/Porch”
- Sub-metering or defined loads of spaces
- Solar Kitchen/Nutrition Lab



Outdoor Environmental Learning Opportunities



Analemmatic sundials are a type of horizontal sundial that has a vertical gnomon and hour markers positioned in an elliptical pattern. A **gnomon** is the part of a sundial that casts a shadow. What's special about our sundial is that the person standing in the middle acts as the gnomon.



To plot your own sundial, you need to know where North, South, East and West are, as well as your longitude and latitude. You also need to know the time zone.

These sundials are large pieces of mathematical sculpture. Just remember that they mark solar time and not clock time.

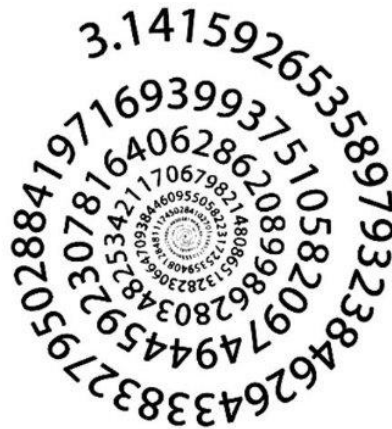
what **time** do you have

want to learn more?

Check out this website for more information:

www.plus.maths.org/content/anelemmatic-sundials-how-to-build-one-and-why-they-work.org

Signage created by Grimm + Parker Architects



Outdoor Environmental Learning Opportunities

- Structured outdoor classroom areas
- Habitat houses for wildlife
- Tree identification tags
- Environmental art
- Amphitheater for classroom or community
- Natural walkways with signage



Connecting with Nature, Environmental Literacy Tie-Ins



Interacting with Building Systems



Savage Library, G+P Architects



Savage Library, G+P Architects

Demystifying “Hidden” High Performance Systems

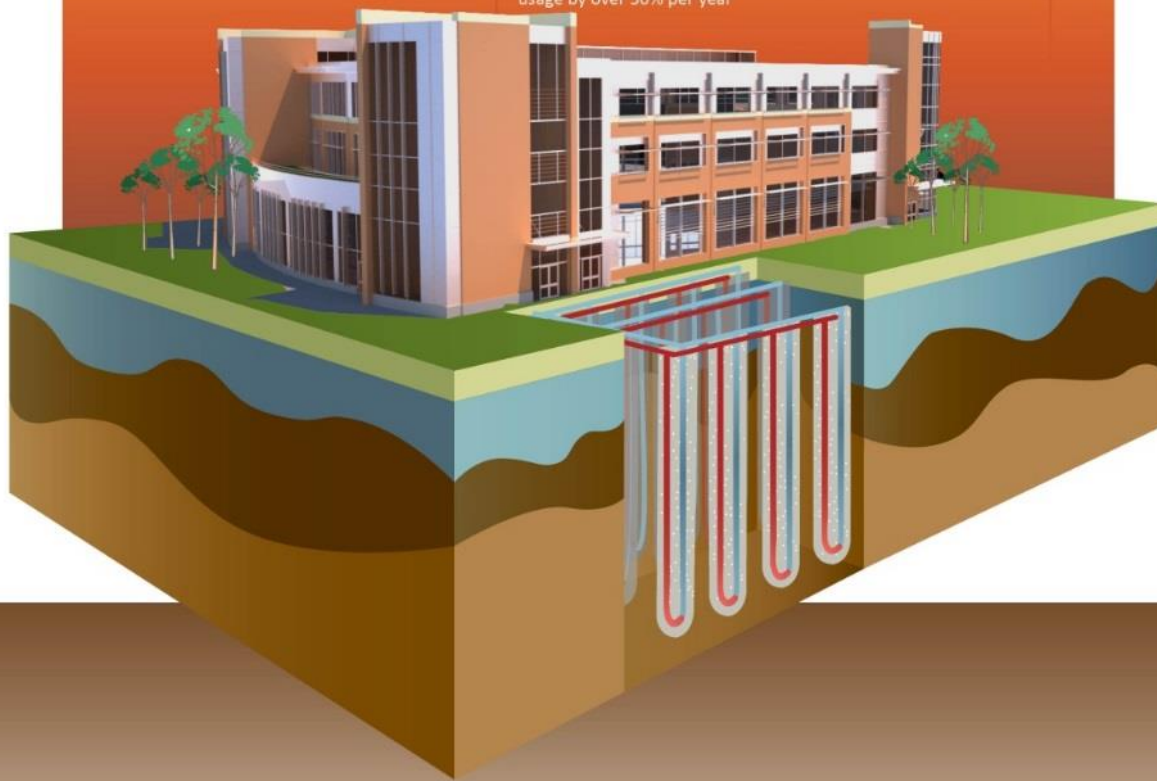
Definitions

geothermal - : the word geothermal comes from the Greek words geo (earth) and therme (heat). geothermal energy is heat from within the Earth.

- Heating and cooling equipment is connected to the ground and extracts heat from the ground to use in the building during the cold season. During the summer, heat from the building is stored in the ground.

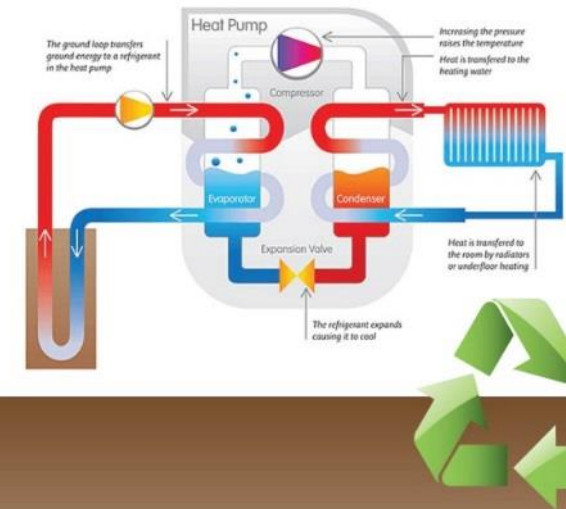
ground source heat pumps use the earth beneath your feet as a thermal storage battery.

geothermal ground source heat system reduces energy usage by over 30% per year



Geothermal Well

This school's mechanical system has many names – geothermal heat pump, ground source heat pump (GSHP) are just two of them. Simply, it's a central heating and cooling system that pumps heat to and from the ground and uses stable ground temperatures near the Earth's surface to control building temperatures above ground. 80 wells were drilled 400-feet deep in a 20-foot by 20-foot grid under the lawn to the south of the Arts and Sciences building. The closed-loop piping is connected to heat pumps located above the ceiling throughout the building. Teachers can control the temperature in their classrooms and every room saves energy.



Connecting Green Design to Curriculum and Clubs



Exposing Building Systems



Ducketts Lane ES, G+P Architects

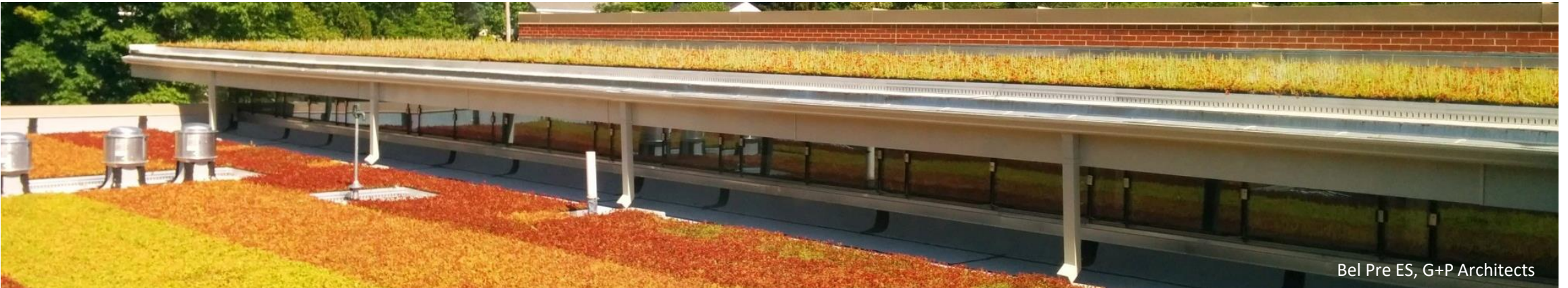


Ladybird Johnson MS, Corgan Associates



Ladybird Johnson MS, Corgan Associates

Vegetative Roof as a Teaching Tool



Connecting Energy to Curriculum

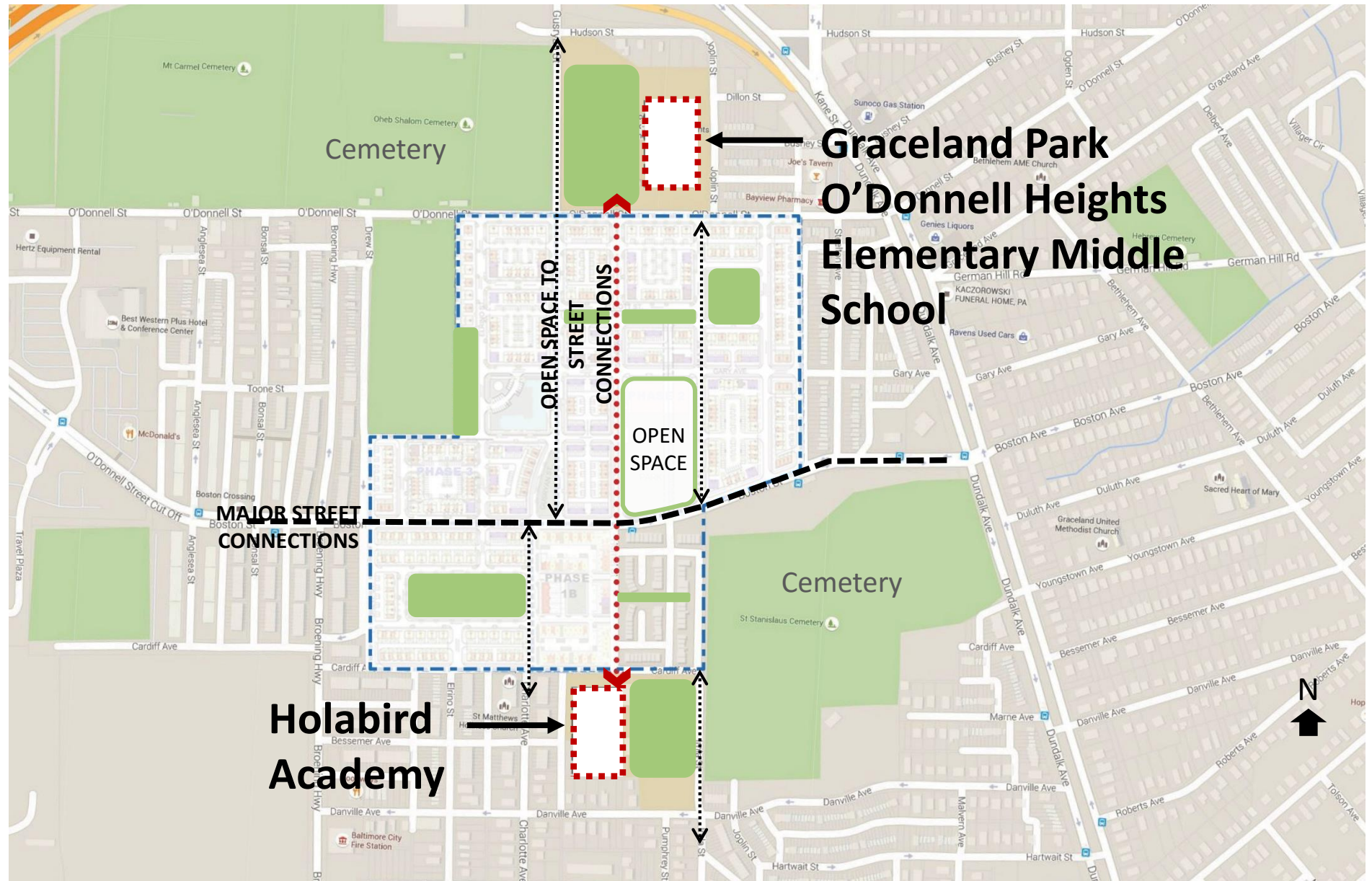


Middle School is the perfect age for integrating high performance building strategies and systems with curriculum

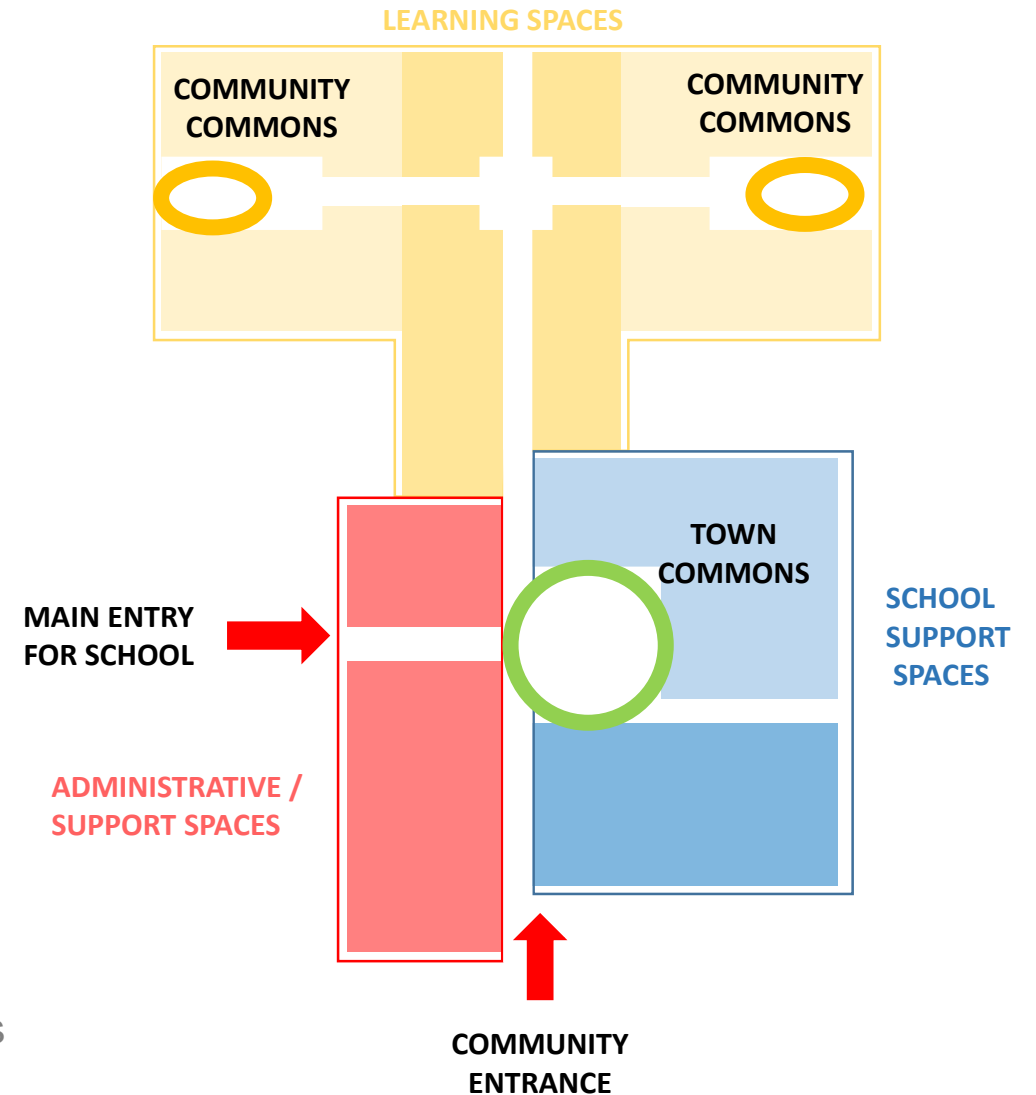
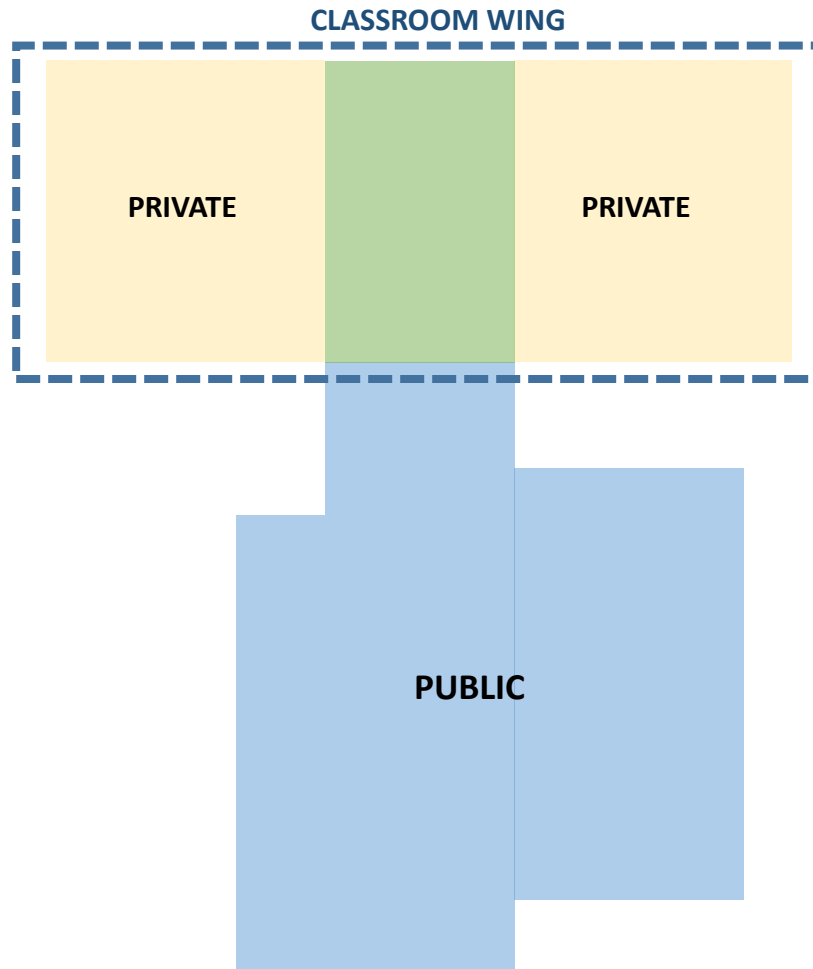


Community Connections

Site Context

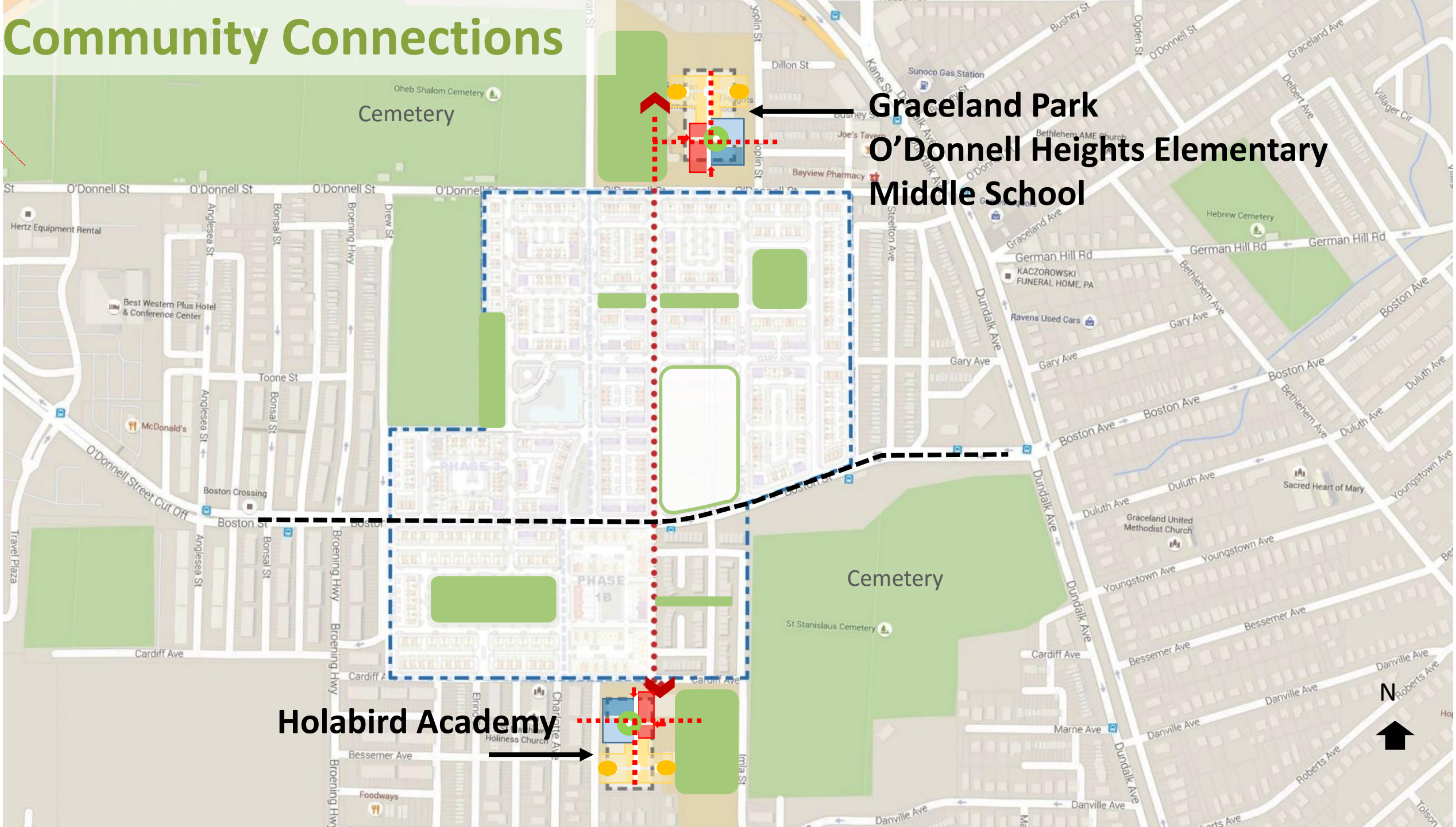


Building - Organization



- Separate school/community entrances
- Open dining – “Town Commons”
- Classroom clusters with “Community Commons” on each floor

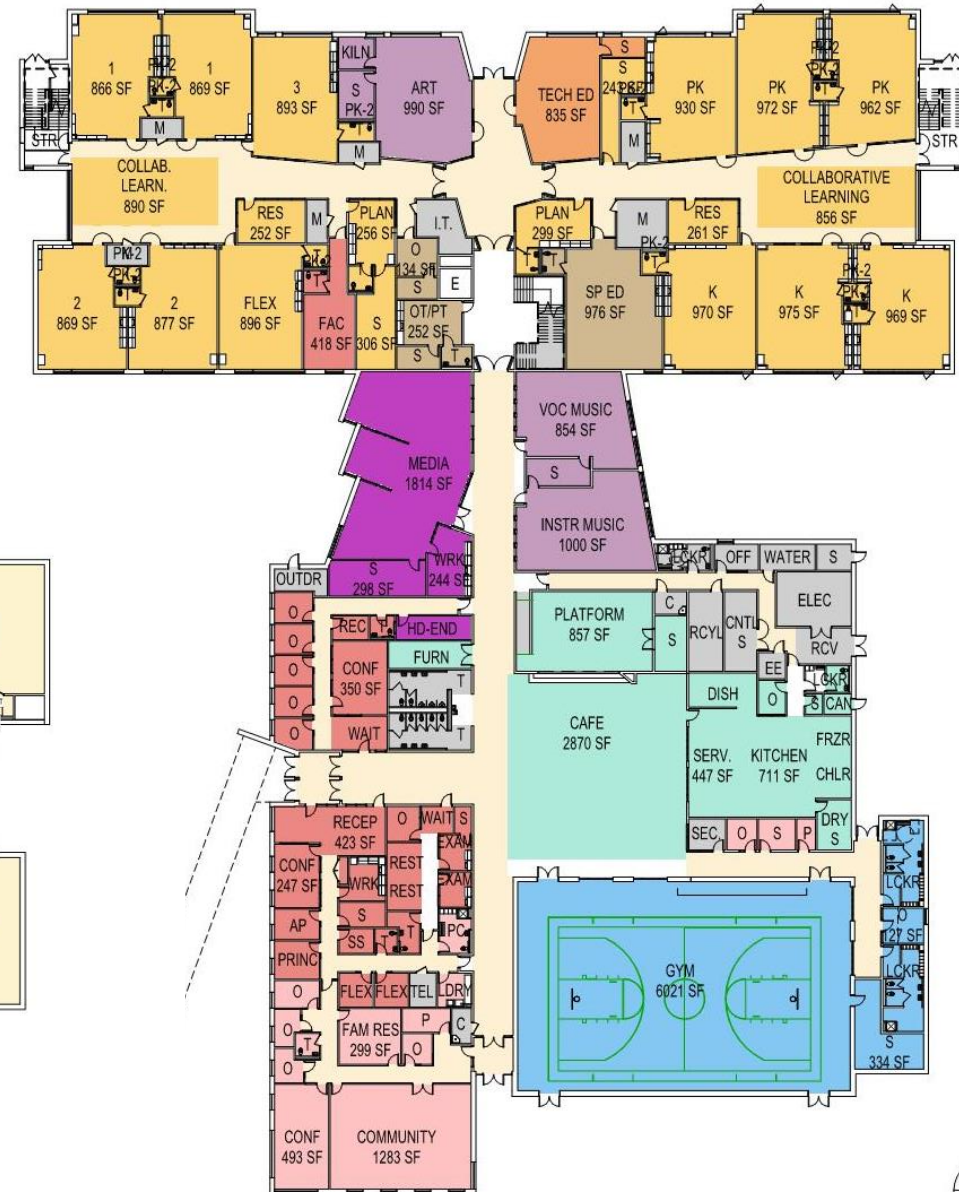
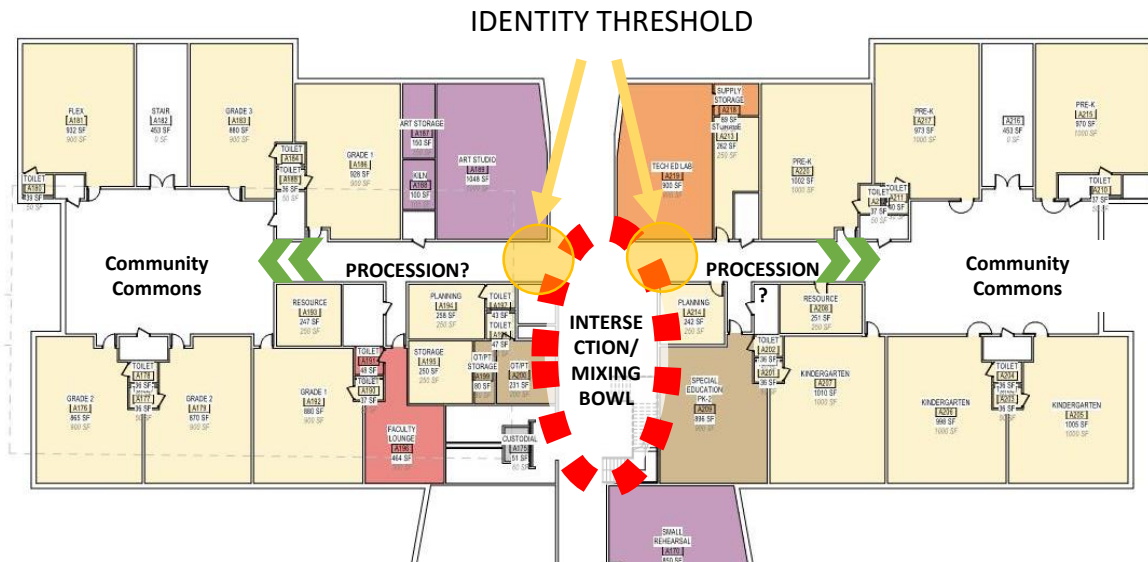
Community Connections



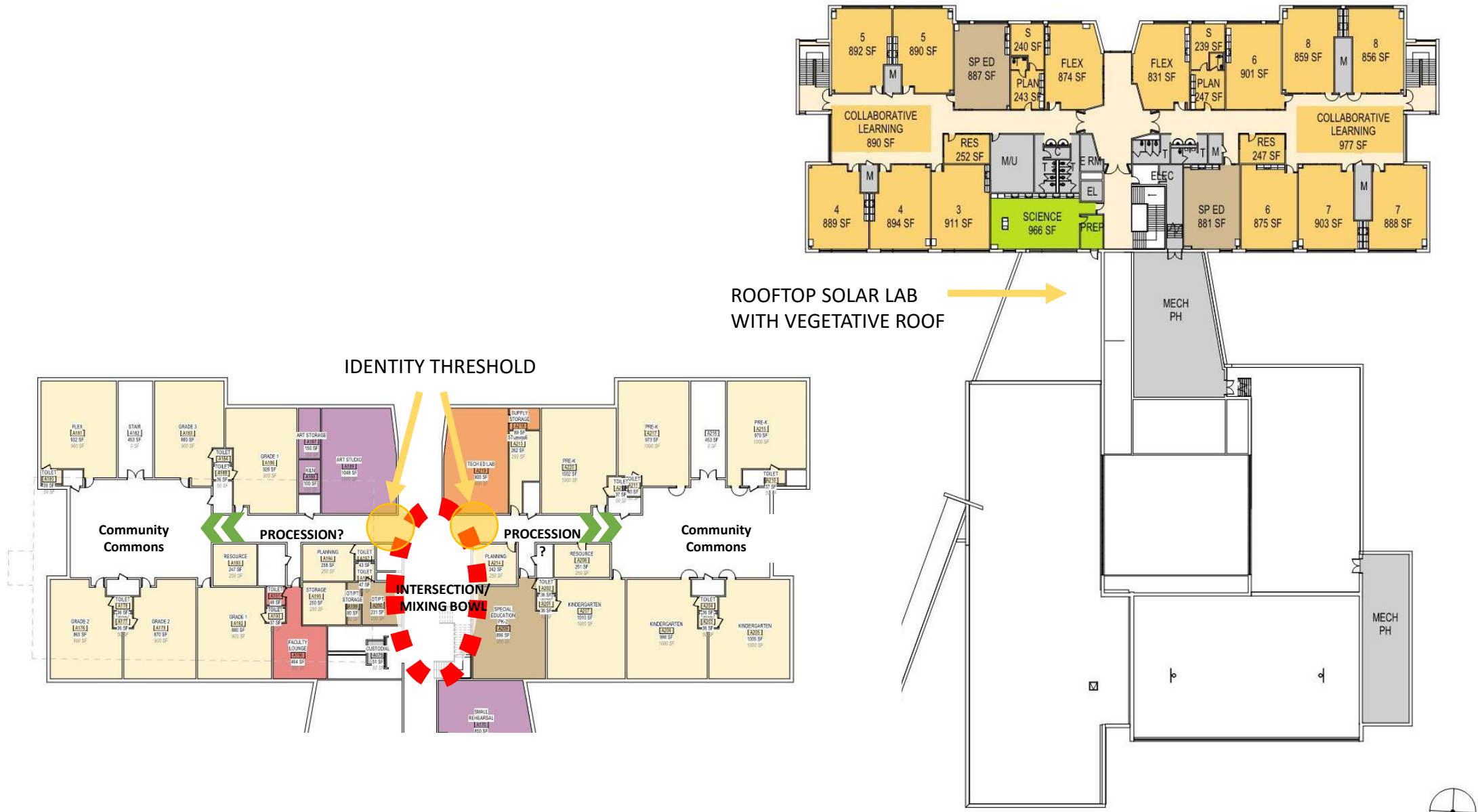
**Graceland Park
O'Donnell Heights Elementary
Middle School**

Holabird Academy

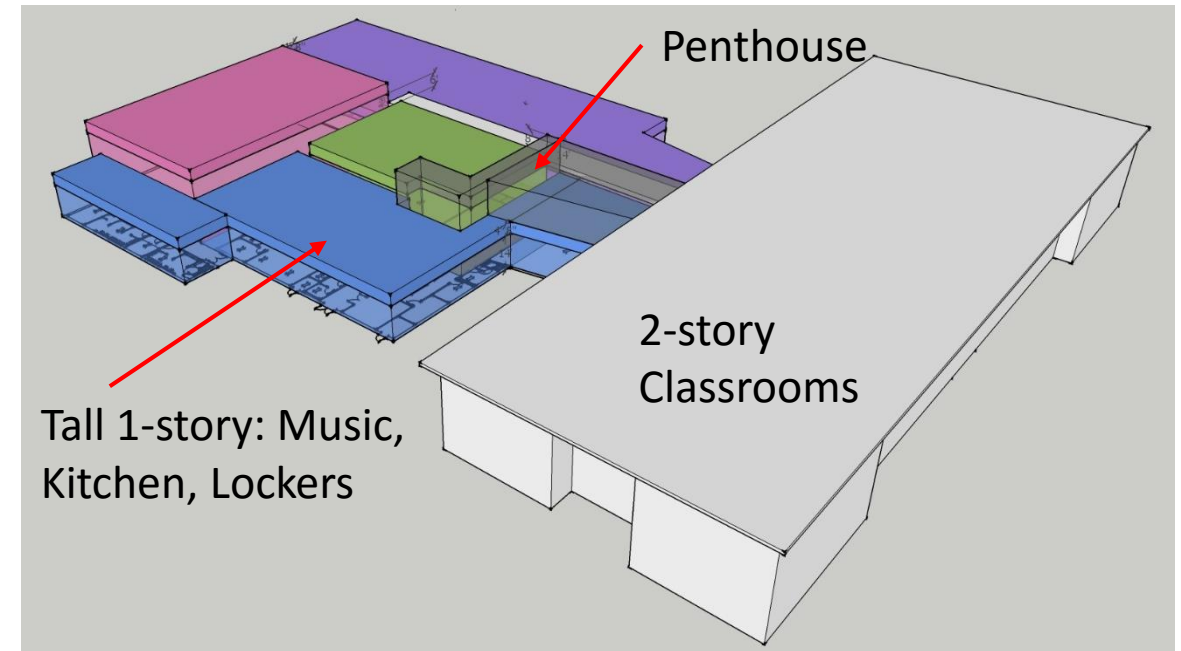
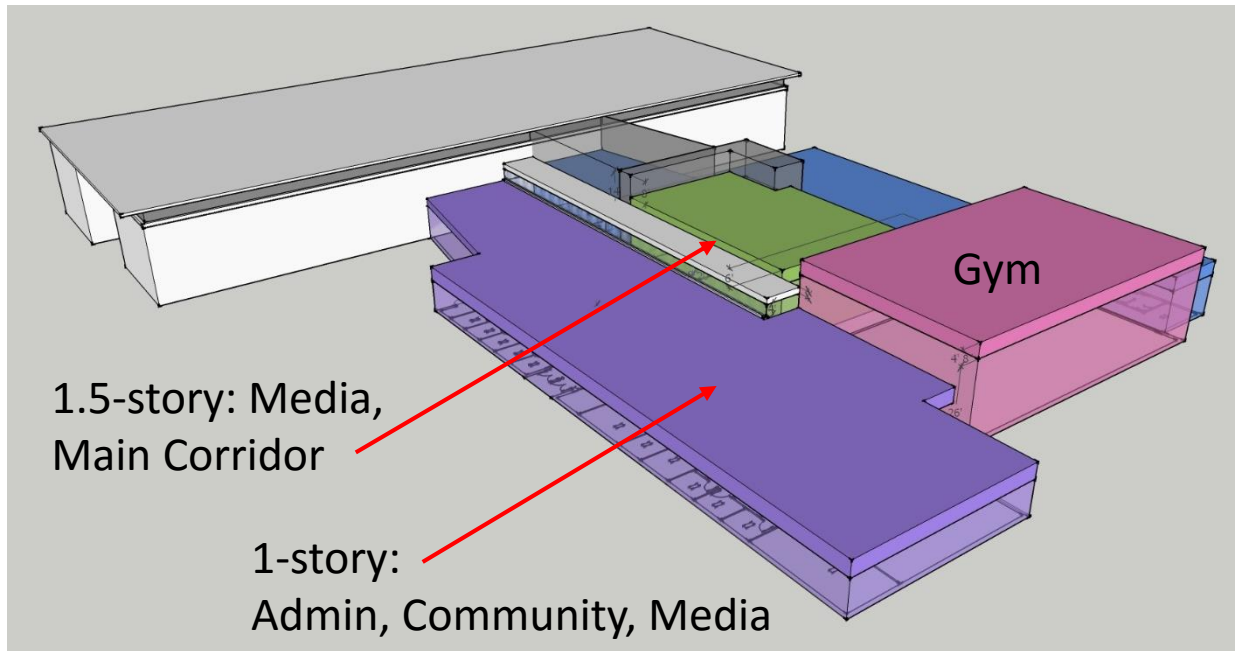
Building – 1st floor plan



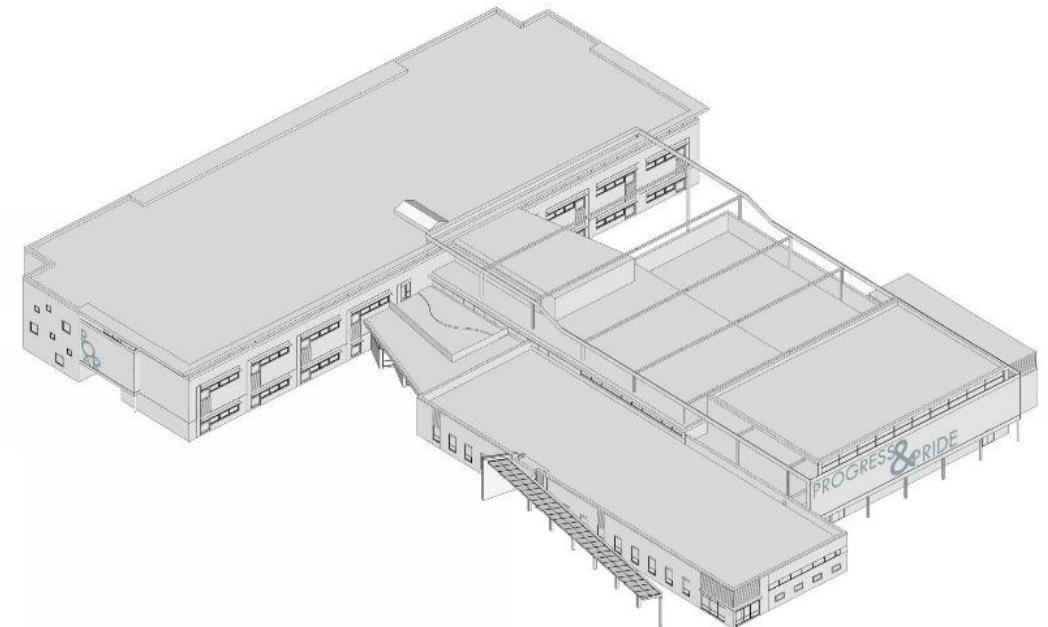
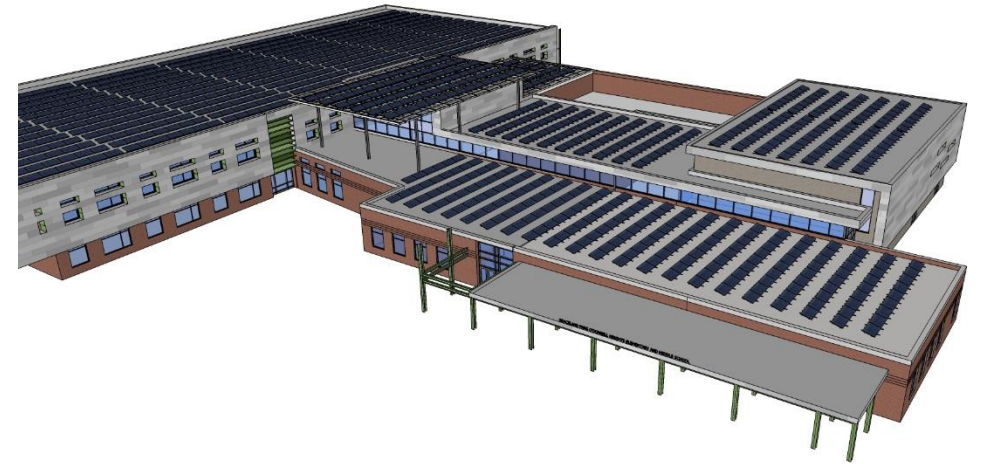
Building – 2nd floor plan



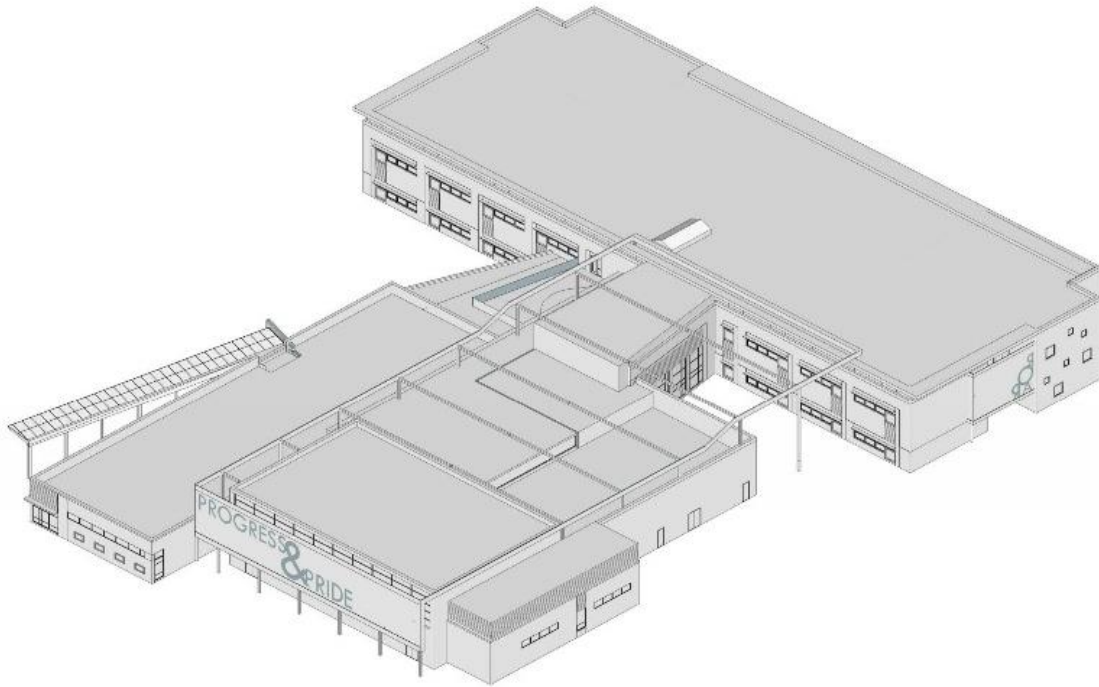
Building – Massing Diagram



Roof studies

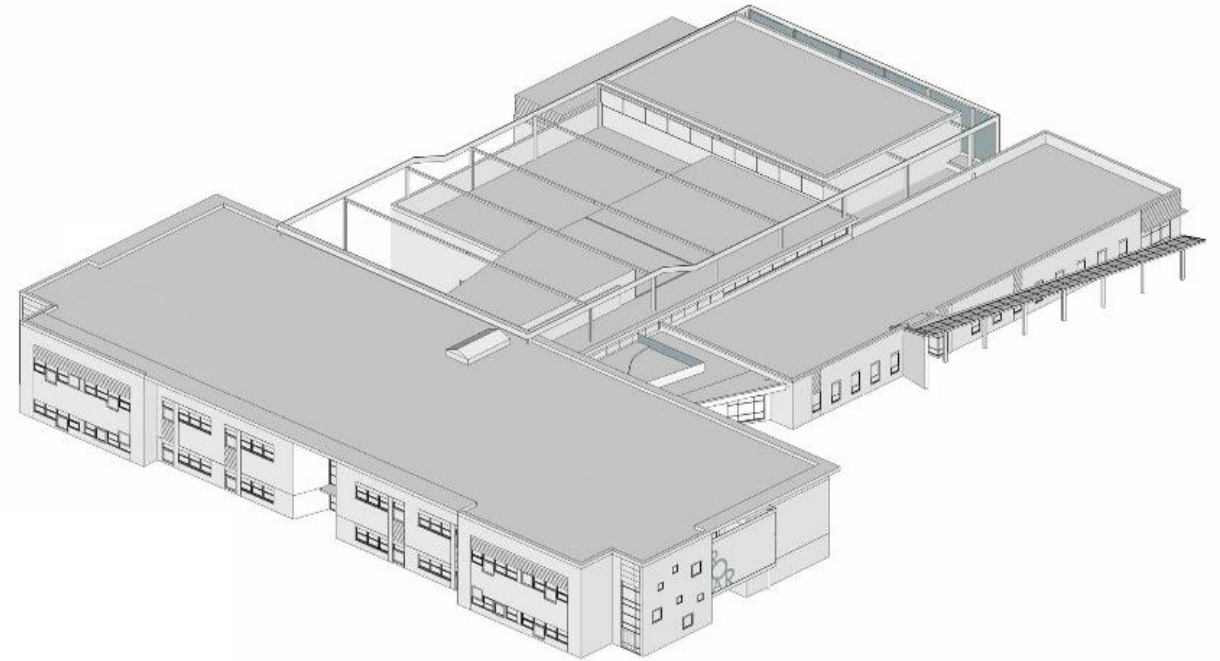


Building - Massing



A18

MASSING AXON OF GYM AND MUSIC

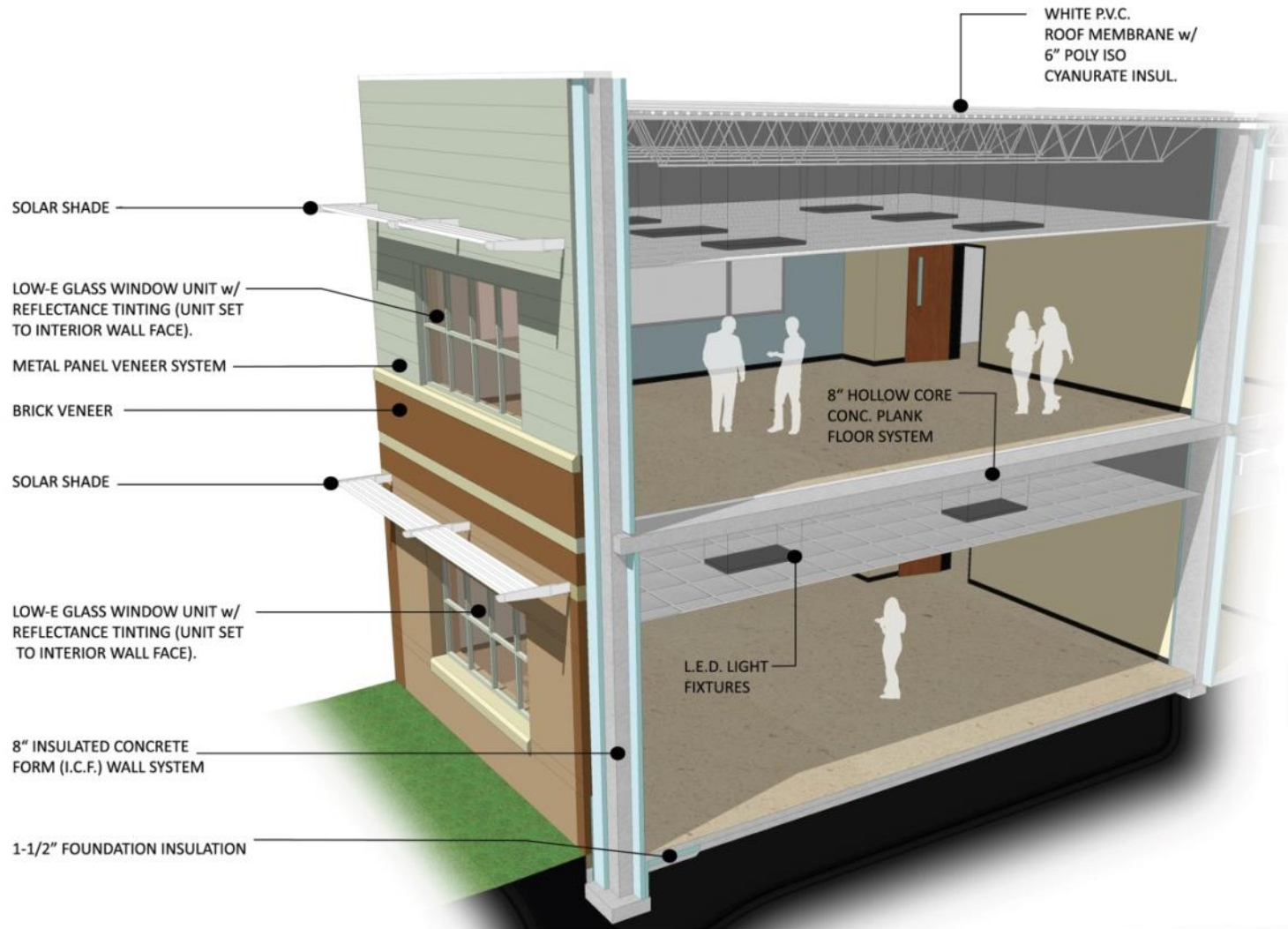


E9

MASSING AXON OF CLASSROOM WING

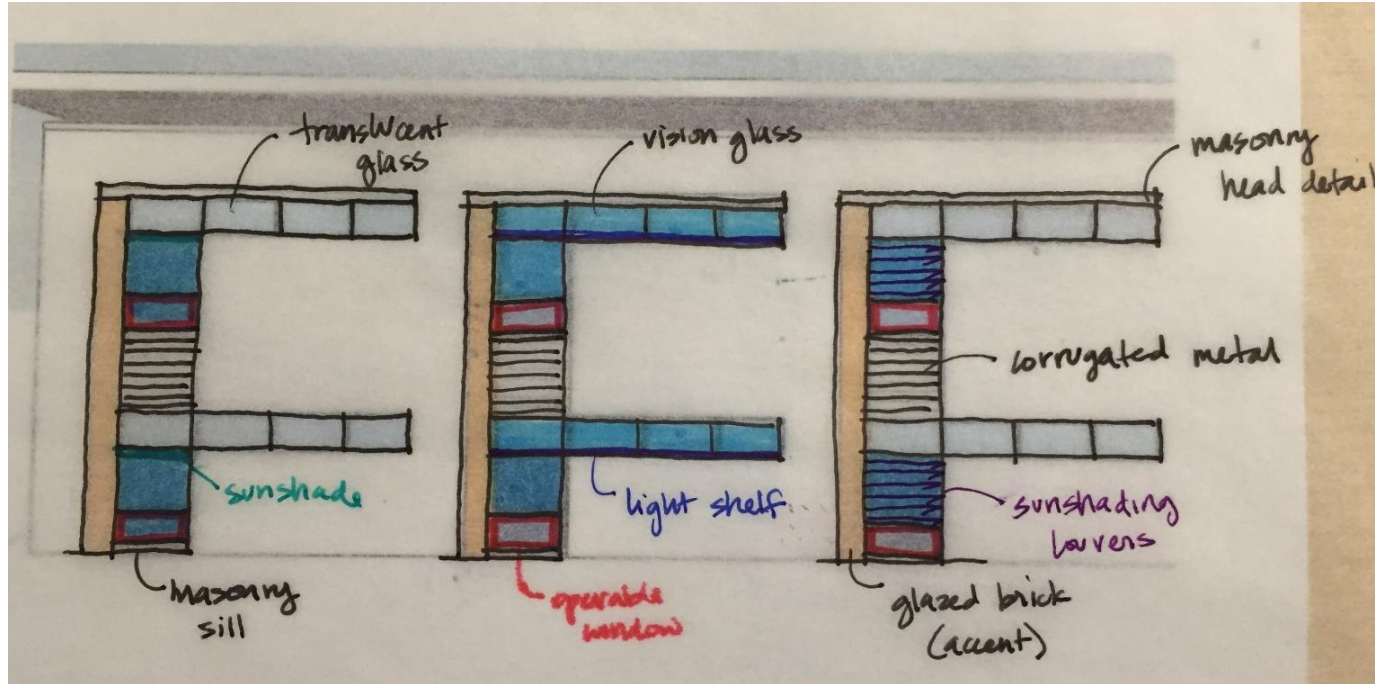
Project Overview

Classroom Daylighting Strategies

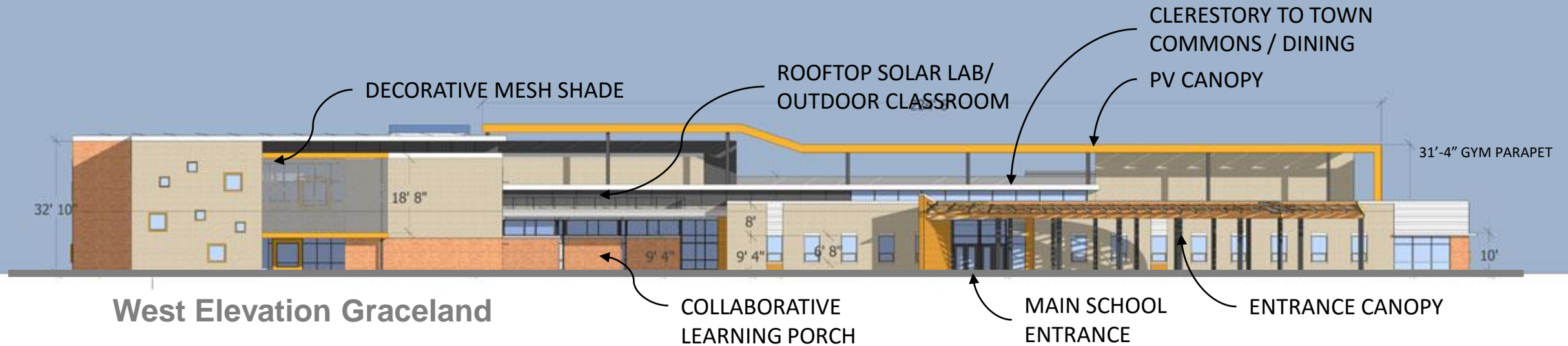
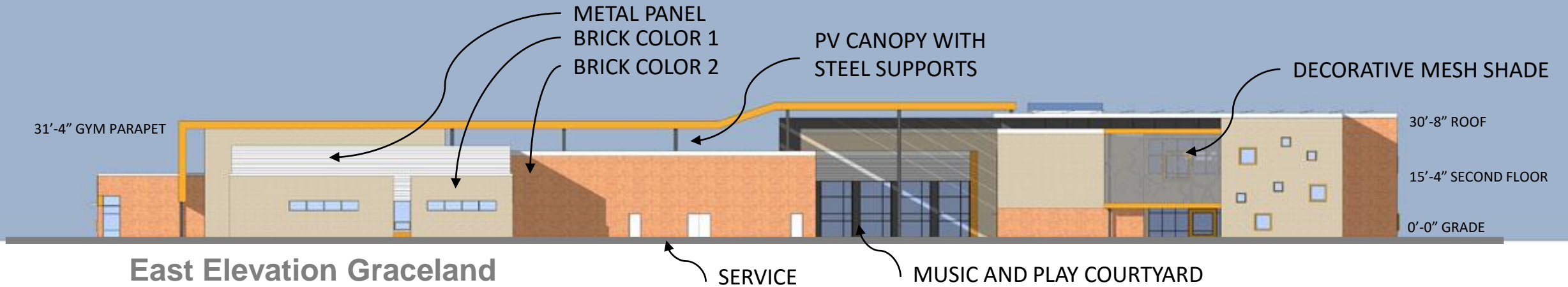


- Reduced window/wall ratio
- Solar shades
- Reduced Lighting Power Density from 0.9 to 0.45 w/SF
- Simplified lighting controls

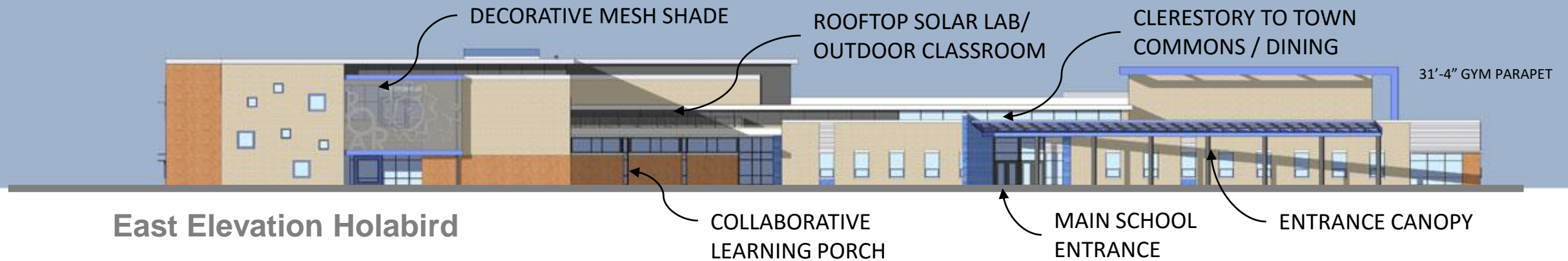
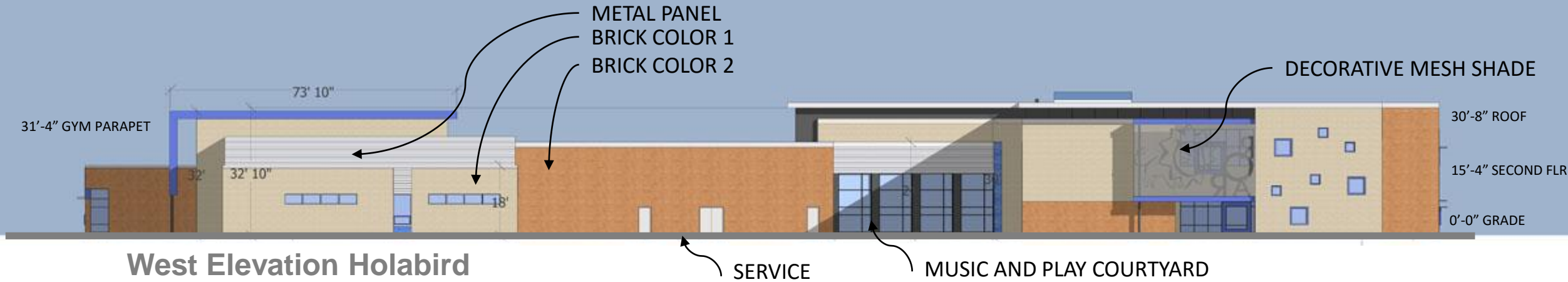
Fenestration Studies



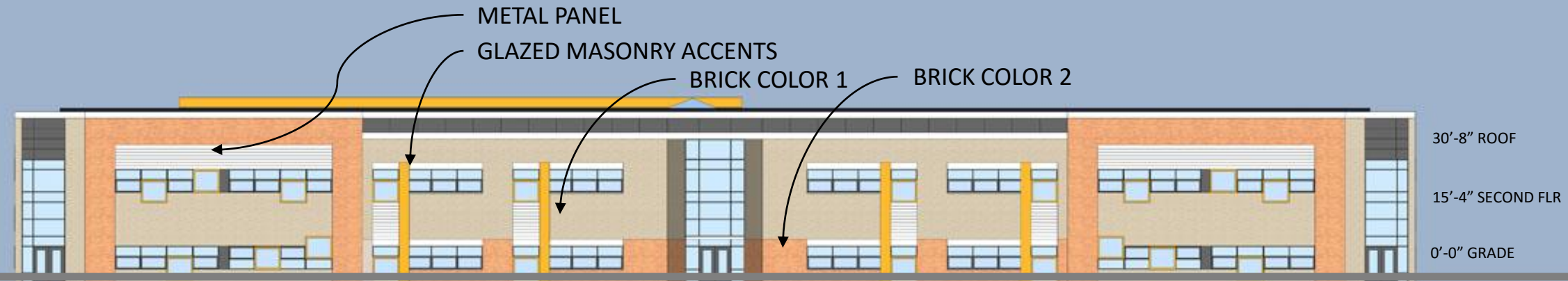
Elevations - Graceland



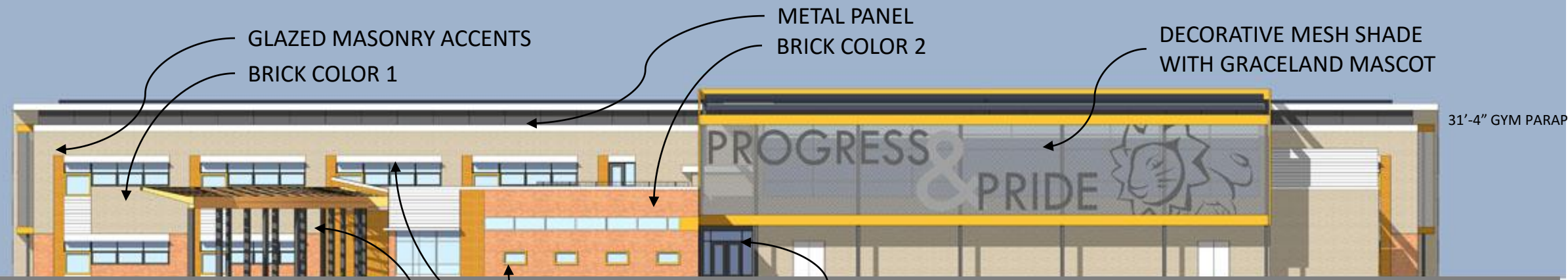
Elevations - Holabird



Elevations - Graceland

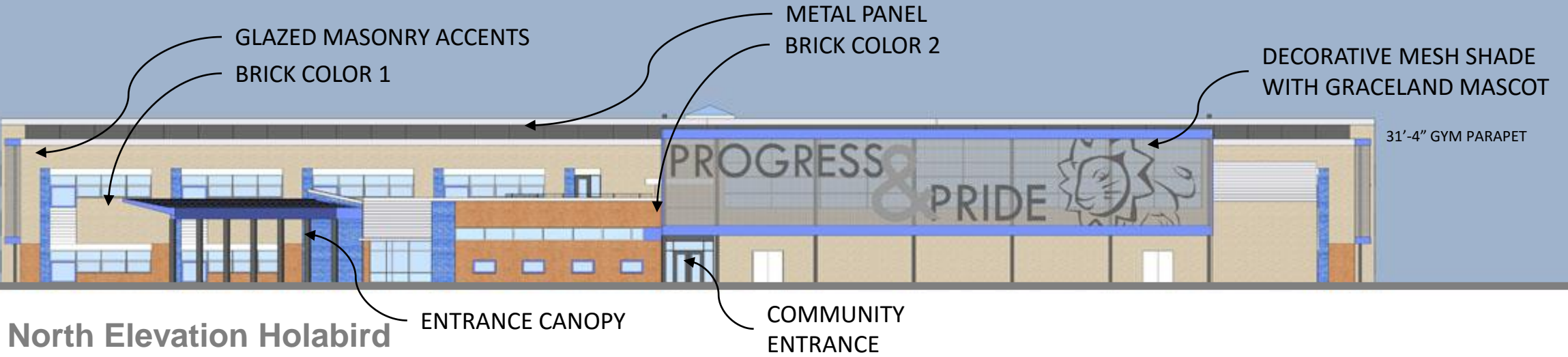
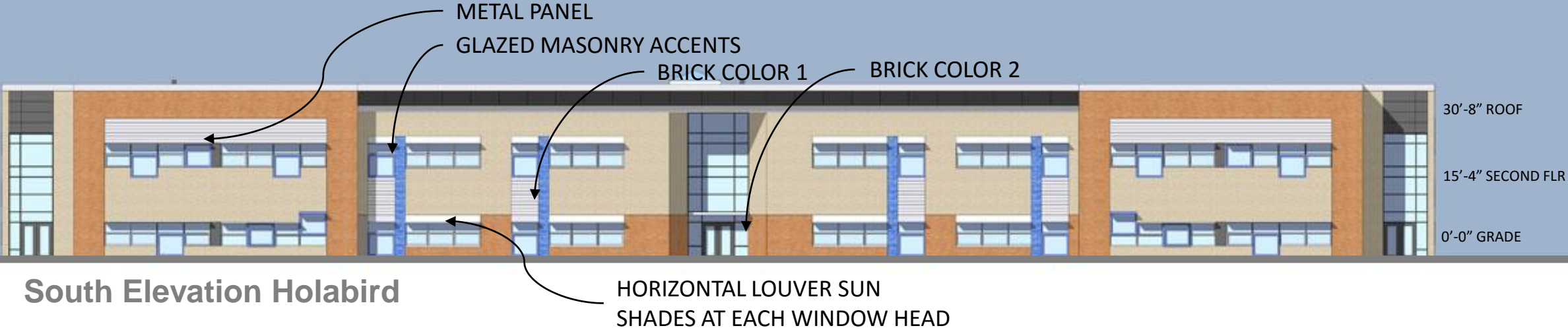


North Elevation Graceland

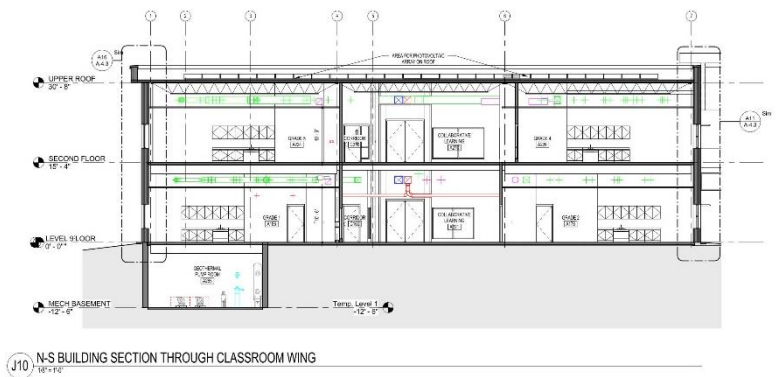
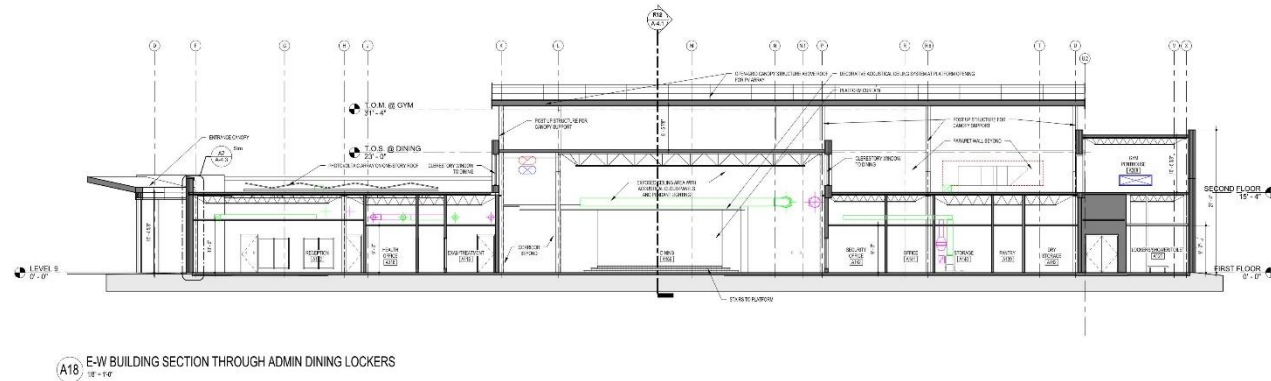
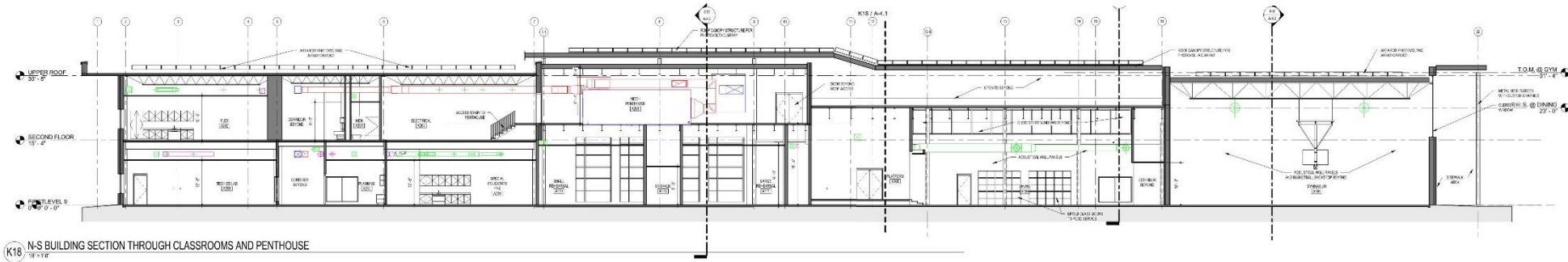


South Elevation Graceland

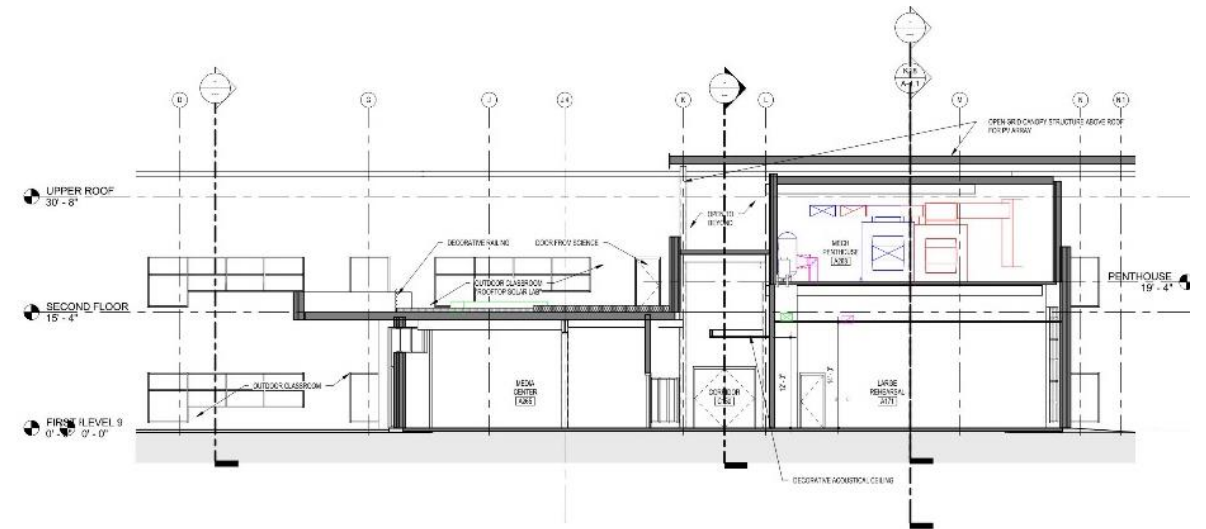
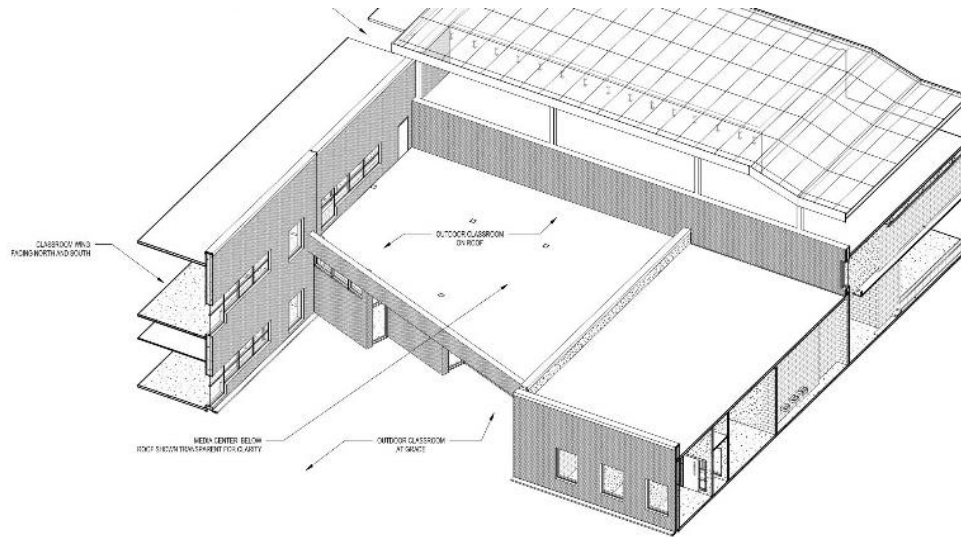
Elevations - Holabird



Building - Sections

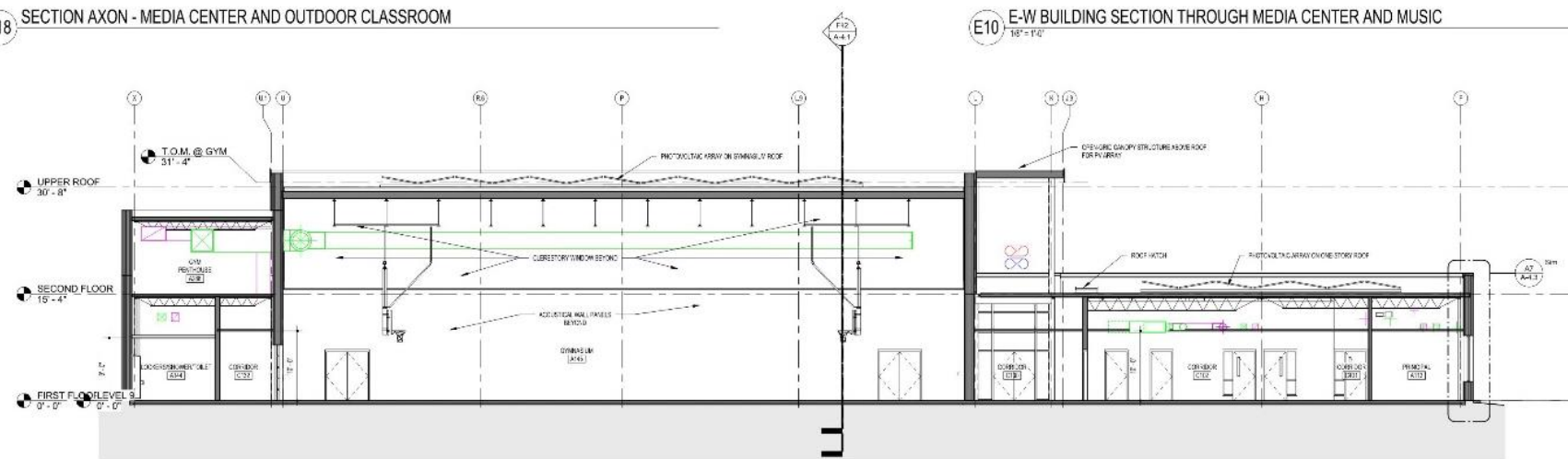


Building - Sections



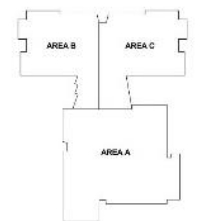
E18 SECTION AXON - MEDIA CENTER AND OUTDOOR CLASSROOM

E10 E-W BUILDING SECTION THROUGH MEDIA CENTER AND MUSIC



A18 E-W BUILDING SECTION THROUGH ADMINISTRATION, GYM, AND LOCKER ROOM

KEY PLAN



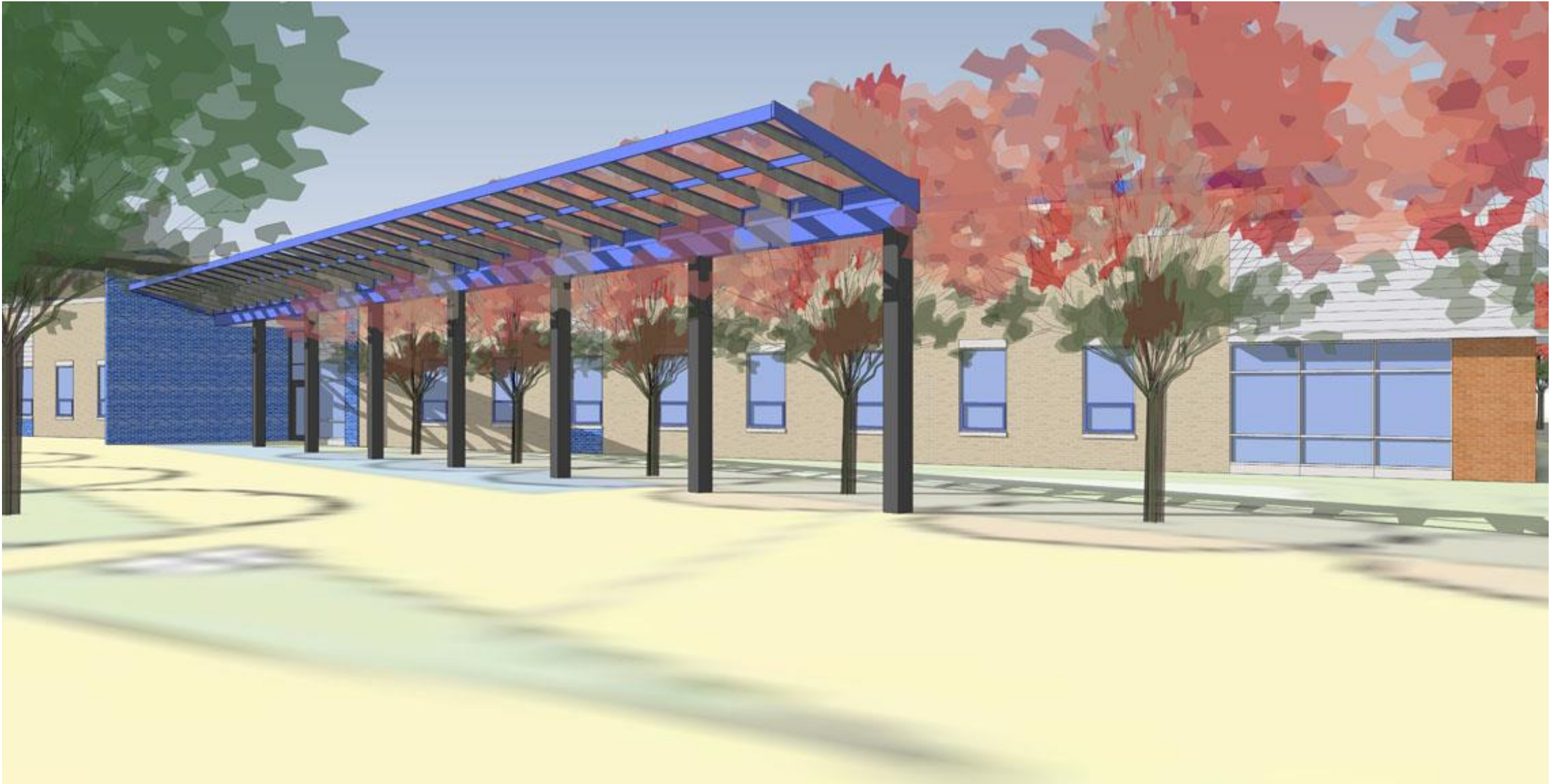
Aerial View - Holabird



Aerial View - Holabird



Approach to Main Entrance - Holabird



View of Media Center Outdoor Learning Area - Holabird



Aerial View - Graceland



Aerial View - Graceland



Approach to Main Entrance - Graceland



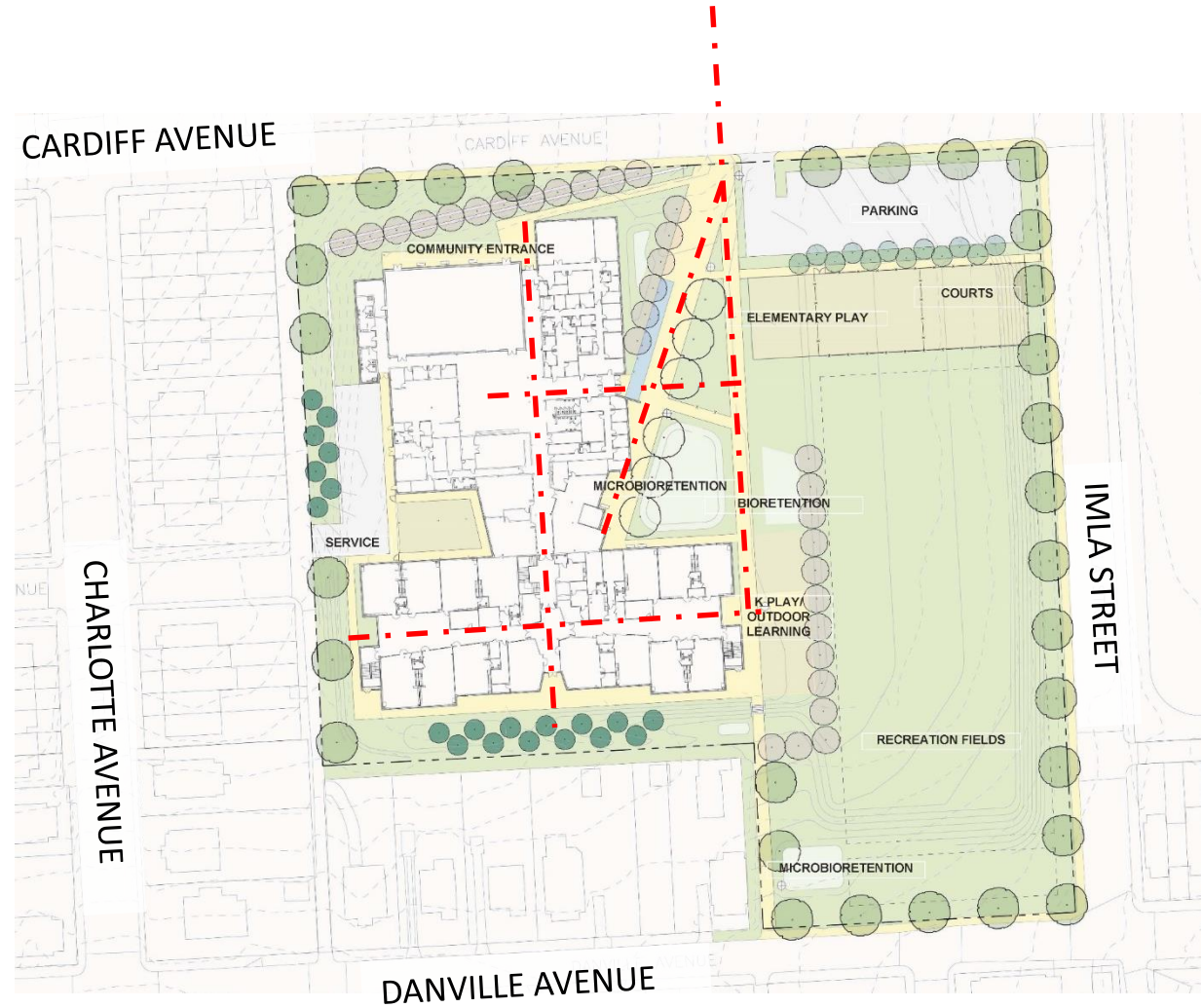
View of Media Center Outdoor Learning Area - Graceland



Graceland Site Plan



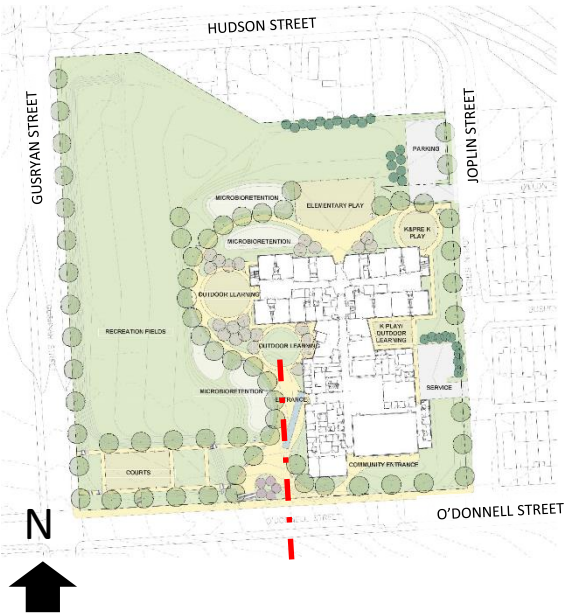
Holabird Site Plan



Graceland ES/MS

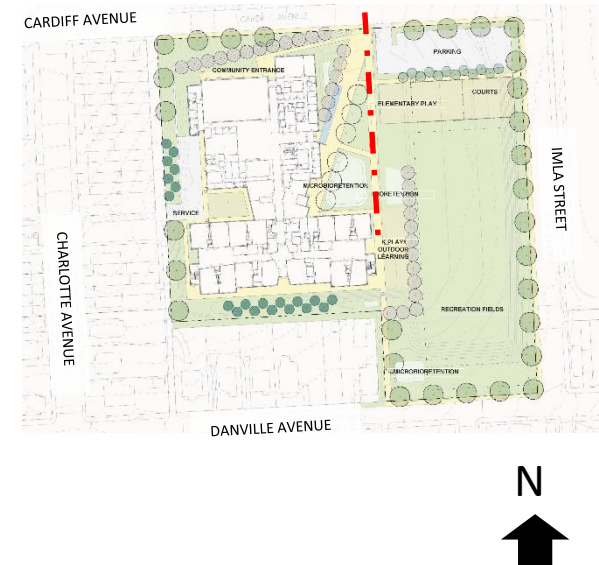


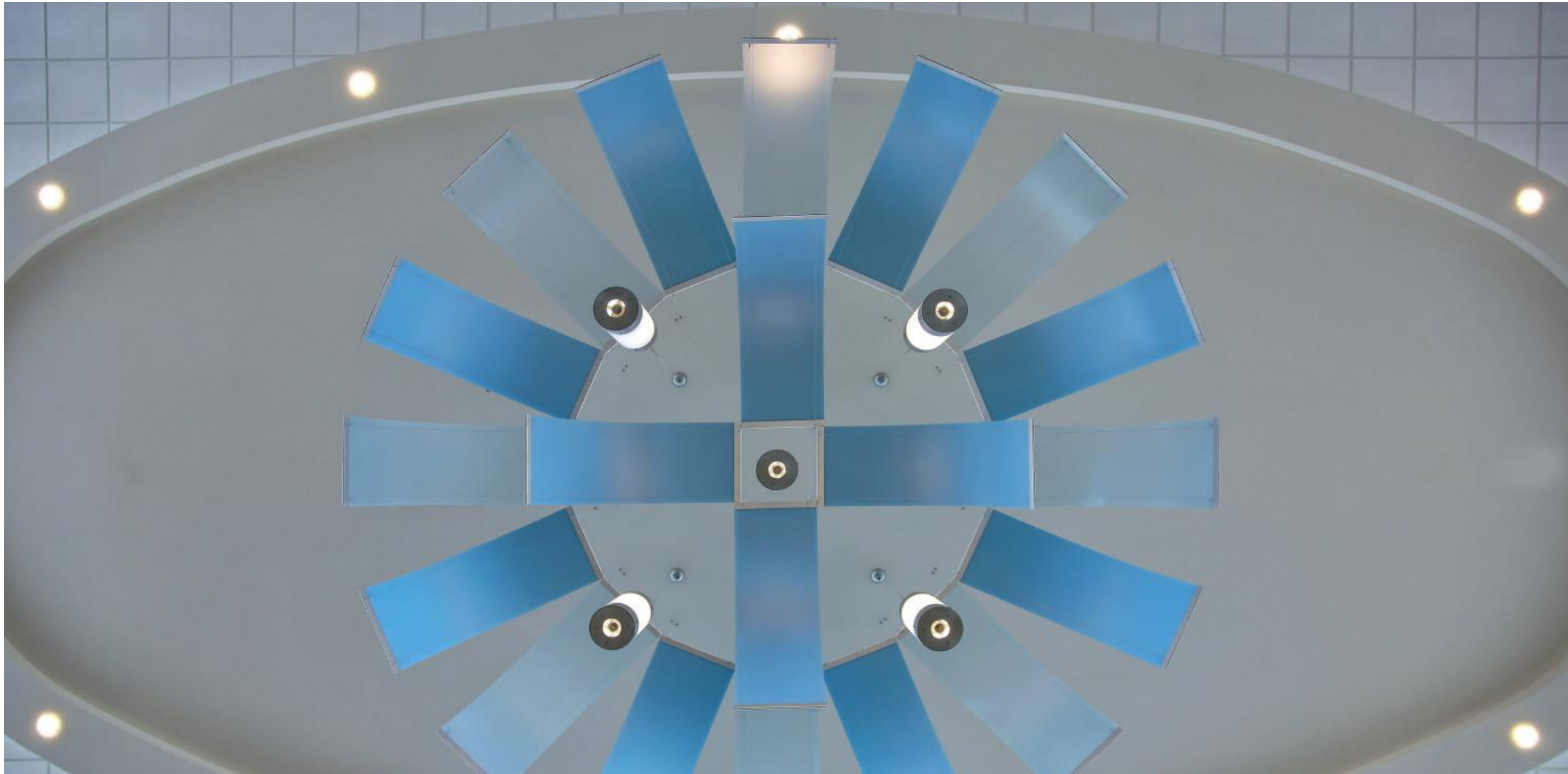
Holabird ES/MS



- Net Zero Energy Design = On-site renewables (PV)
- Curvilinear Site Layout
- Gym facing South
- Classroom Bar facing North

- Oriented 180 degrees from Graceland School
- Rectilinear Site Layout with Diagonal Entrance Canopy and Path Connecting to "School Street"
- Gym facing North
- Classroom Bar facing South





THANK YOU

BALTIMORE CITY

PUBLIC SCHOOLS

Holabird Site Design - Landscaping

UPDATE GRAPHICS
Latest site plan.
Have precedent images for
vegetation being considered i.e
trees, bushes etc.
Precedent images for surface
materials
Precedents for site furnishings



Graceland Site – Landscaping

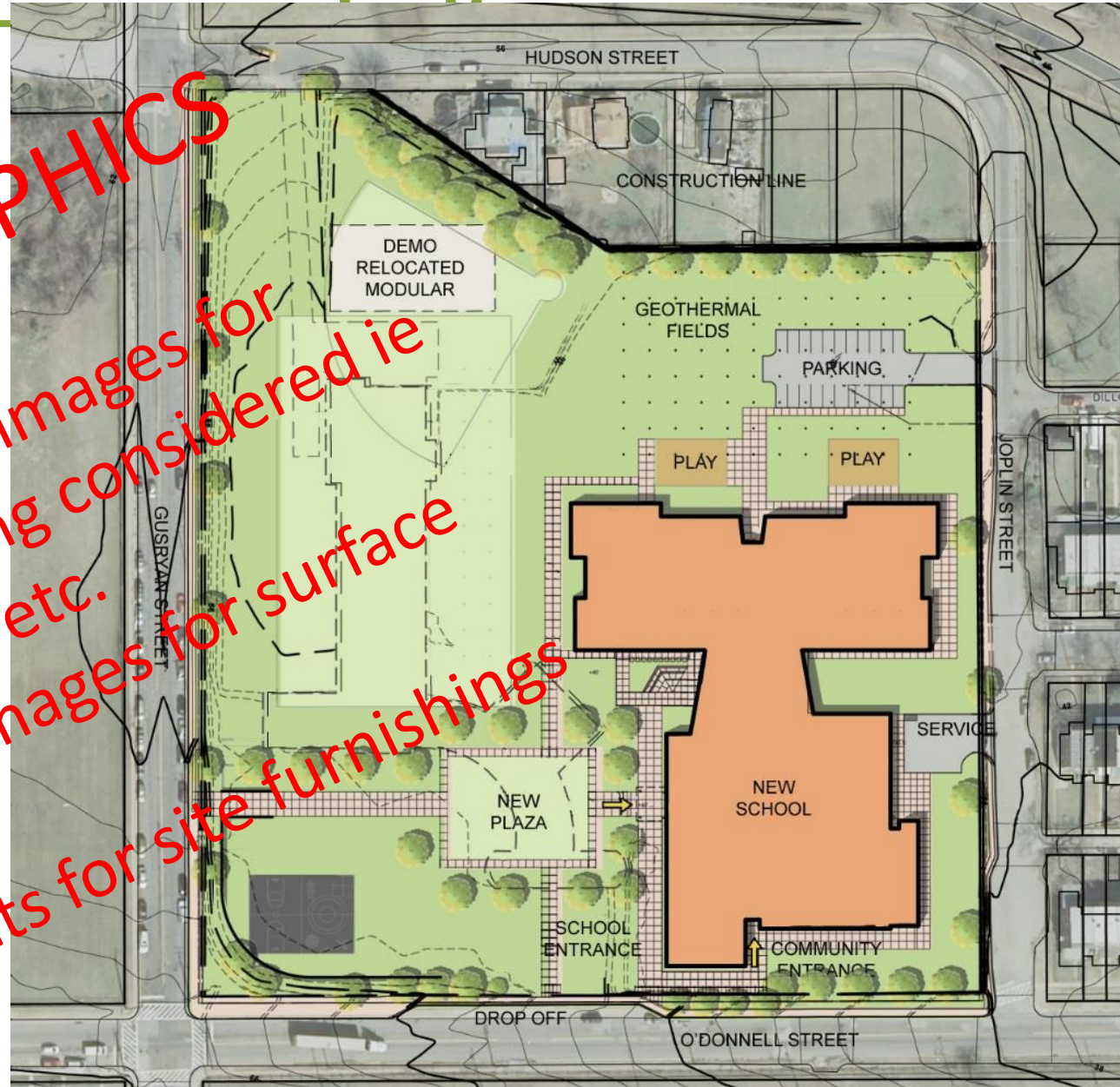
UPDATE GRAPHICS

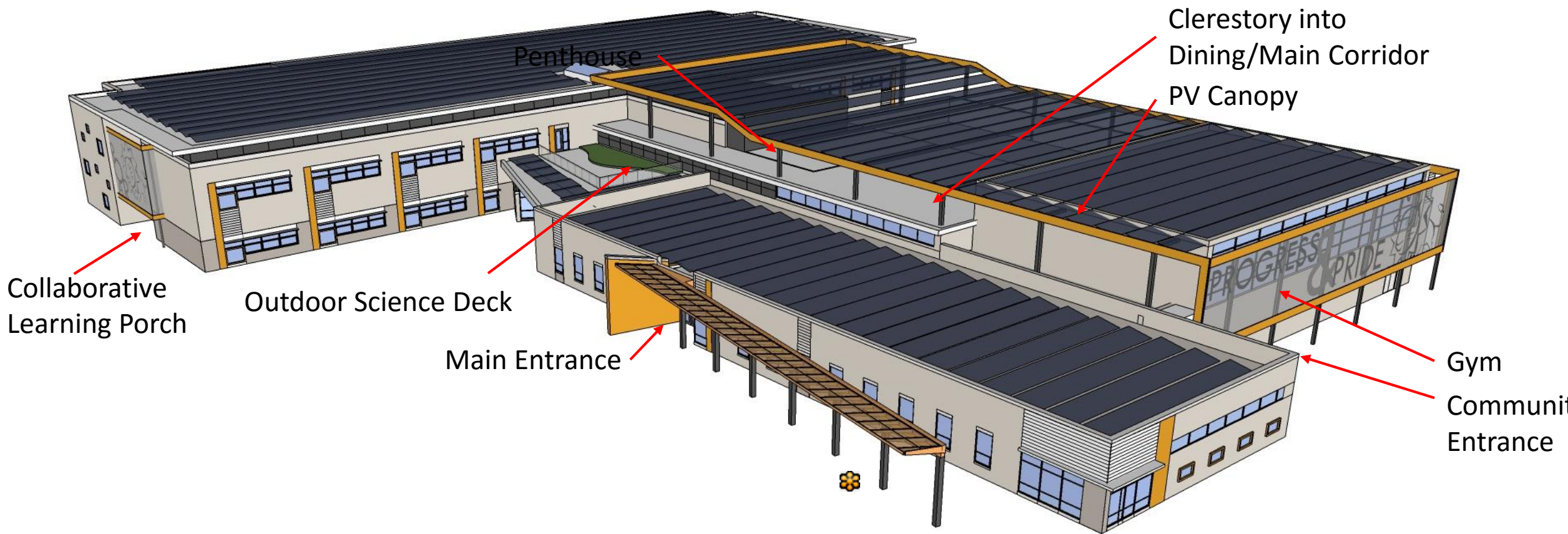
Latest site plan.

Have precedent images for vegetation being considered ie trees, bushes etc.

Precedent images for surface materials

Precedents for site furnishings





GREEN STRATEGIES

- Protect natural habitats by planting native plants with an outdoor teaching area
- Design a compact school that allows more space for trees, fields, and reduces the impact on the natural environment.
- Using energy efficient heating and cooling systems
- Reduce storm water runoff and pollution
- Aim for a water savings through the use of water-conserving fixtures such as dual flush toilets and low flow faucets.
- Improve productivity and health of occupants through access to daylight and views
- Using LED lighting
- Implement a green housekeeping plan
- Provide lighting and thermal controls
- Use a geothermal system for heating and cooling
- **Use the school as a teaching tool**